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ABSTRACT

A teacher's guide for a course designed to provide library administrators with an understanding of the issues and techniques of library automation contains suggestions for conduct of the course and projects for student participation. The eight units of the course cover librarians and automation, computer technology, systems analysis and implementation, MARC programs, library clerical processes, reference services, related technologies, and library networks. Lists of references, films, and figures are included. (Author/LS)

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Post-Master's Education for Middle and Upper-Level Personnel in Libraries and Information Centers

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COURSE III

APPLICATION OF COMPUTER TECHNOLOGY TO LIBRARY PROCESSES

TEACHER'S GUIDE

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Joseph Becker
and
Josephine S. Pulsifer

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Catholic University's continuing education courses in library science at the post-MLS level have been developed through the creative assistance of many colleagues. Following is a partial list of those contributors (the affiliations indicated are those just prior to, or during, their association with the project.)

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THE CATHOLIC UNIVERSITY OF AMERICA'S

CONTINUING EDUCATION PROJECT IN LIBRARY SCIENCE

The Catholic University of America's Continuing Education Project in Library Science has as its major goal the development of courses adapted to present and future library job requirements. The course materials are designed to meet the actual on-the-job needs of middle and upper-level library personnel who have completed a master's degree in library science and who have gained practical experience in a library environment.

Three courses have been developed by the project: Human Resources in the Library System, The Governmental Library Simulation for the Study of Administration of a Special Library, and Application of Computer Technology to Library Processes. For each set of course materials, the data base which was used was provided by Phase I of the research project,[1] which concentrated on an analysis of job dimensions and educational needs of middle and upper-level library personnel who had a master's degree in library science.

Of the 78 courses to which the respondents in the study reacted, the highest demand was for courses in automation, administration of the governmental library, administrative policies and practices, and human relations in library administration. In the project the assumption was made that curriculum planning for post-MLS courses should combine judgments not only of those performing the jobs, but also of top-level administrators who are setting the standards for hiring and promotion and are in key positions to know what libraries need in additional competencies for personnel in order to meet adequately the needs of clients in a time of great societal and technological change. The top-level library administrators thought the courses most

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[1] James J. Kortendick, and Elizabeth W. Stone. Post-Master's Education for Middle and Upper-Level Personnel in Libraries and Information Centers. Final Report, Phase I. (Washington, D.C.: Department of Library Science, The Catholic University of America, 1970) (ED 038 985). Subsequently revised and republished as Job Dimensions and Educational Needs of Middle and Upper-Level Library Personnel (Chicago: American Library Association, 1971).

needed at a level beyond the curriculum of the master's degree program in library science were: human relations in library administration, administrative policies and practices, policy formation and decision making, and automation of library processes.

Through the use of a job inventory, the survey also ascertained what activities the librarians were spending most of their time doing and what activities they considered most important in the performance of their jobs. Far outranking any other activity in the dimensions of both time and importance was: directly supervising and guiding subordinates. The rating by the respondents of the 223 job activities covered in the inventory provided valuable data for determining how much emphasis should be given to different concepts that are presented in each of the three courses that have been developed.

Findings from the questionnaire and the interviews conducted during Phase I of the project shed considerable light on necessary attributes of formal courses at the post-master's level if they are to appeal to practicing librarians. High quality programs and practical courses relevant to their present positions were the two curriculum-centered conditions that were mentioned most often by the respondents. From the free response answers of librarian respondents and their supervisors, it was apparent that quality was equated with interdisciplinary and systems oriented course content which would provide for a wide range of instructional strategies including a multi-media approach. Or, as one respondent expressed it: "New programs should be just that -- new-- based on innovative methods which make full use of the educational technology concepts available today." The criteria put forth by the librarians themselves have served as the guidelines for those developing the three courses which constitute CUA's Continuing Education Project. For example, The Governmental Library Simulation uses simulation as its mode of teaching, while the course Human Resources in the Library System employs a wide variety of structured experiences related to on-the-job library problems.

Throughout, a systems approach has been used which has facilitated the integration of knowledge from many sources with concerns of a particular course. Use of a systems approach in the development of these courses has also involved: (1) specification of behavioral objectives based on actual on-the-job learning needs; (2) assessment of student repertories; (3) development of instructional strategies; (4) testing; (5) revising instructional units (validation); and (6) packaging the course which is to be

administered. Thus, the learning experiences have been designed to produce the behavior specified for each course.

On page iv are the names of our colleagues who have helped in the development of these courses especially designed for librarians at the post-MLS level. Some of them worked on a full-time basis for a given time span; others were part-time or occasional consultants, contributing to some aspect of a course, but all were valued and dedicated collaborators who deserve the gratitude of everyone who cares about the continuing education of librarians and the improvement of library service.

CUA's Continuing Education Project, officially entitled "Post-Master's Education for Middle and Upper-Level Personnel in Libraries and Information Centers," and emanating from the University's Department of Library Science, has received financial support from the Bureau of Research, United States Office of Education and The Catholic University of America.

Rev. James J. Kortendick, S.S.
Elizabeth W. Stone

Directors of CUA's Continuing Education Project in Library Science
Department of Library Science
The Catholic University of America

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PREFACE

The application of computer technology to library and network processes and services is not an end in itself, but rather a means of narrowing the gap between the demand for library services and the ability of libraries to provide those services. Libraries have assumed the active role of serving the informational, educational and recreational needs of the population. The size of that population grows constantly, its educational level keeps climbing, and its percentage of leisure time is increasing.

Concurrently, the quantity of printed materials which libraries must service has increased markedly, and the variety of new formats for printed materials and for non-print media has been just as remarkable.

Present day communications are noteworthy not only for quantity but for speed, and library users now require that information or recreational materials be available to them almost immediately.

At the same time that libraries are faced with all of these pressures, the cost of library services is rising. The major cost of library service is salaries, which have risen dramatically in recent years. Recent cutbacks in governmental programs and

funding and the resulting economic squeeze has seriously threatened the ability of libraries to meet even their present level of service.

Claims that automation will actually save money are rarely if ever justified; however, all of the necessary services cannot possibly be provided by manual means and the cost of increased quantities of just the present manual services is much higher than the amount of funds available. Thus, libraries will be forced to utilize computer and related technologies if they are to continue to fulfill their function in our society. If they fail to do so, other institutions will assume those functions.

The application of computer technology to libraries, especially to the manipulation of bibliographic records in the performance of library functions, is a complex process and demands the highest level of talent of both the library and computer professions for its accomplishment. It cannot be accomplished by either profession alone; rather, the design of a library system is a team effort between librarians, computer system analysts, and programmers. Even a limited effort demands careful long-term planning if it is to fit with later efforts into a cohesive whole. The smallest project will affect nearly all operations of the library. For these reasons it is necessary that all library

staff have at least a general overview of what library automation is all about.

Library administrators must have a basic grasp of the fundamentals of computer technology and of the requirements for systems analysis, planning, staffing, funding. They must understand both the bibliographic and technical problems well enough to make intelligent decisions and manage effectively. They must keep abreast, to varying degrees, of several professions or technologies, so that they can fit the individual library into the broader community of libraries and can make reasonable assumptions about future technological development.

This course is designed to provide present or future library administrators with sufficient understanding of the issues and techniques involved that they can approach library automation with equanimity and good sense. They will acquire a solid background upon which to build in the future and will realize that library automation is neither simple, quick, nor cheap--neither something of which to be terrified nor a toy with which to play games.

The course is presented in two volumes. The first volume is the Syllabus for the Course, presented in eight units. References cited in each unit are presented at the end of the unit. A bibliography

consisting of basic sources of information and additional references is given at the end of the Syllabus volume.

The second volume is a Teacher's Guide, containing suggestions to the teacher for conduct of the course, and projects for student participation. It is arranged in units corresponding to the units of the Syllabus. References cited in the Teacher's Guide are listed in a single sequence at the end of the Guide, followed by a separate list of films.

We wish to express our appreciation to Henriette D. Avram for her review of and suggestions for the MARC Program unit and to Robert M. Hayes for contributing portions of the text. Members of the staff of Becker and Hayes, Inc. have been generous with their professional or clerical assistance. Special thanks are due to Jacqueline Baker to whose typing skill and dedication we owe the existence of this course in printed form. The importance of team effort between author and typist is second in importance only to that between librarian and computer systems analyst.

Joseph Becker

Josephine S. Pulsifer

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UNIT I - BRIDGING THE GAP: LIBRARIANS AND AUTOMATION

Objective A:

To gain a clear impression of the level of the students' technical knowledge of library automation. This will help the instructor determine how much emphasis to apply to the early class sessions and at the same time permit him to allay fears about automation.

The first unit, therefore, is meant to be an icebreaker, a chance for each student to gauge the enthusiasm and interest of his classmates, and an opportunity for the instructor to learn about the Students' prior understanding of library automation and data processing techniques.

Suggested Approaches:

1. Select terms from Glossary in Hayes and Becker's Handbook of Data Processing for Libraries 1/ and refine definitions through class participation.

2. Review Ellsworth Masons's article 2/ in College & Research Libraries and subsequent literature rebutting or supporting Mason. Select student teams to debate pros and cons of library automation.

Objective B:

To acquaint students with background sources of information, funding agencies and media for continuing education.

Suggested Approaches:

1. Require student reports on current research funding activities of grant agencies such as Office of Education, National Science Foundation, Council on Library Resources, etc. These agencies generally fund research programs which are on the cutting-edge of the field and it gives the instructor an

opportunity to discuss the motivation behind projects underway in the field as well as future trends.

2. Have one or more students elect mechanization subject headings from Library Literature and perform a citation count over the past decade to dramatize the rapid growth rate of professional interest in library automation topics.

3. Review the scope of coverage of the Journal of Library Automation. Expose the relative value of of the articles which appear in it and point out the heavy emphasis given to implemented library automation projects.

4. Compare library automation and information science activities in any foreign country. Aside from Great Britain, there are few examples available of active automation programs in foreign libraries.

Topical Questions for Unit I Discussion:

1. What are the areas of technology which may eventually change the role of the library?

   Answer:

   a) computers - application to housekeeping functions and to information storage and retrieval in the future.

   b) communications - application to interlibrary networks.

   c) audio-visual - new forms of information in libraries.

   d) micrographics - compaction of data

2. Name and briefly describe the four journals one should read to keep abreast of developments in library automation and information science.

Answer:

a) Journal of Library Automation - published by ISAD, a division of ALA. General articles on library automation.

b) Journal of the American Society for Information Science - more scholarly than the Journal of Library Automation.

c) Computing Reviews - annotated summaries of articles on computers and computer knowledge. Published by the Association for Computing Machinery.

d) Information Science Abstracts - co-sponsored by Special Libraries Association, American Documentation Institute, and Division of Chemical Literature of the American Chemical Society. Divided into ten broad topics, with further subdivision under each topic.

3. Information science encompasses the interests of four distinct professional groups. Who are they?

4. Why should librarians be trained in information science?

5. What is the thrust of Licklider's book on Libraries of the Future? 3/

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UNIT II - COMPUTER TECHNOLOGY

Objective A:

To familiarize the student with computer concepts and associated technical terms.

In this area the Instructor may wish to rely heavily on audio-visual materials. All of the computer manufacturers, particularly IBM, have produced extremely useful media presentations which convey the fundamental concepts of computer operation, methods of data representation, and programming.

IBM publishes and distributes an IBM Motion Pictures Catalog and its films are available to the public. Films may be ordered through the following five regional outlets.

Modern Talking Picture Service
714 Spring Street, N. W.
Atlanta, Georgia 30308

Modern Talking Picture Service
160 East Grand Avenue
Chicago, Illinois 60611

Modern Talking Picture Service
1411 Slocum Street
Dallas, Texas 75207

Modern Talking Picture Service
1145 North McCadden Place
Los Angeles, California 90038

Modern Talking Picture Service
1212 Avenue of the Americas
New York, New York 10036

Two IBM color, 16mm, sound films are especially pertinent to this unit:

1. The Information Machine - by Charles Eames. (10 minutes) An overview of the value of and need for computers in our society.

2. A Computer Glossary - by Charles Eames. (15 minutes) The definitions are clear but they are presented artistically and conceptually rather than for student note taking.

Other films which probe the computer's effects on society and examine its "reasoning" limitations are:

Living Machines (60 minutes) Available from the National Film Board of Canada, Ottawa. Does a computer think? Using science fiction stories, psychological demonstrations, this film explores answers to this question and examines the sociological and psychological effects of technology on human progress. Excellent.

Machines That Think (29 minutes) Argonne National Laboratory, Illinois. A look at the future scientific uses of electronic computers; stresses non-numerical applications. (Available from Atomic Energy Commission Headquarters Film Library, Division of Public Information, U.S. Atomic Energy Commission, Washington, D.C. 20545).

Thinking Machines (19 minutes) Available from the Educational Testing Service, Princeton, N.J. Experiments in machine "intelligence"--Pattern recognition, heuristic learning, etc.

The Instructor may also wish to contact the local IBM business office for more current materials, as well as correspond with the Association for Computing Machinery (ACM) for newer audio-visual materials which may be available. ACM distributes free annotated summaries of films and slides evaluated by its professional staff.

Experience suggests that the Instructor assign one student the responsibility for scheduling and operating audio-visual equipment required for class use.

Objective B:

To develop uniform class understanding of computer hardware and the computer center environment.

A tour of an IBM or other computer facility is very worthwhile. Contact a salesman in advance and acquaint him with the purpose of the trip and the need to emphasize concepts through practical demonstrations. Encourage him to soft-pedal business applications of no interest to librarians. With advance planning a computer company can be persuaded to provide non-numerical

demonstrations that emphasize the input and output functions which are especially important to libraries. A field trip to a local library which utilizes a computer can achieve the same results.

Another way of providing practical understanding of hardware and key concepts is by having a remote terminal in class linked to a commercial timesharing network. This will incur costs for equipment rental and computer time, but it will give the serious student a chance to try an application of particular interest. These applications can then be demonstrated to the class as a whole.

Suggested Assignments:

1. Have students compile a list of reference sources in the computer science field that would be helpful in selecting appropriate equipment.

2. Have students compile a list of sources for finding out about previously developed library software.

Laboratory Exercise: Unit Record Equipment

Exercise Objectives:

1. To give the student "hands on" experience with various pieces of unit record equipment.

2. To provide the student an understanding of individual tasks in the production of a book catalog. (viz: keying, sorting, listing)

3. To impress the student with the need for data that is accurate and correctly keyed.

4. To convey a sense of accomplishment by allowing the student the opportunity to actually complete a highly simplified book catalog.

Suggested Equipment:

IBM 026 Card Punch (no special features required).

IBM 514 Reproducing Punch

IBM 082 or 083 Sorter

IBM 402, 403 or 407 Accounting Machine

Other Materials:

Supply of unpunched 5081 tab cards or equivalent.

Printer paper for accounting machine

Program card for IBM 026

Control panels for 407 and 514, (80x80 list/reproduce)

Sample data deck(s) and listings

Suggested Card Format:

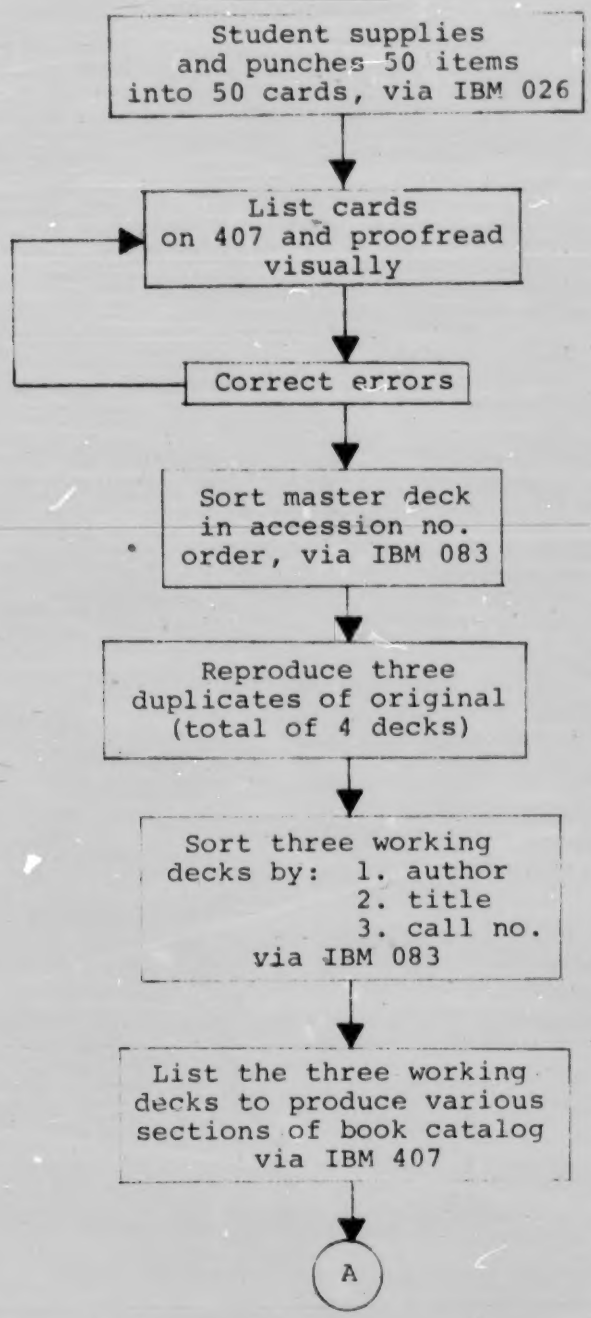
While fixed length fields are unsatisfactory for author, title, and other elements of variable length, they are used in this exercise for simplicity.

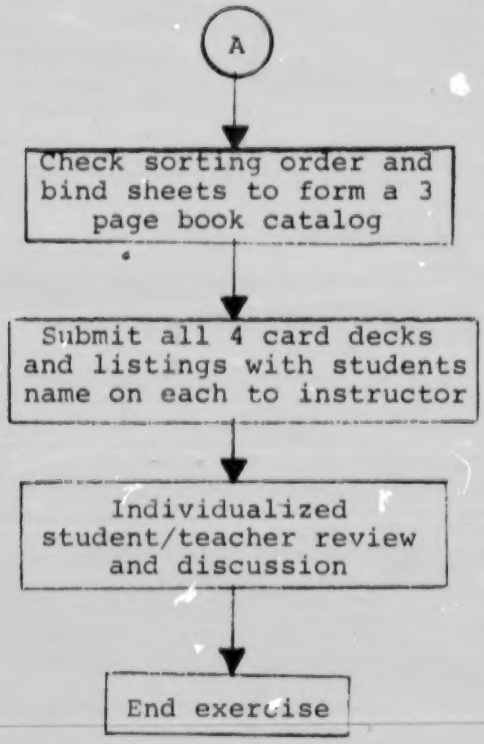
Field Content	Cols.	Length
accession number	1-7	(7)
short author	8-32	(25)
short title	33-67	(35)
call number	68-80	(13)

Suggested Output (407) Format:

For this exercise a straight 80x80 listing of the card format will be acceptable. The instructor should suggest that the students draw lines on the printed output to separate the fields and discuss more sophisticated methods of output. viz: (1) variable vs. fixed fields; (2) line overflow; (3) page overflow, (4) page numbering, and (5) page headings, etc.

Flowchart of Suggested Laboratory Procedure:


Student supplies and punches 50 items into 50 cards, via IBM 026
List cards on 407 and proofread visually
Correct errors
Sort master deck in accession no. order, via IBM 083
Reproduce three duplicates of original (total of 4 decks)
Sort three working decks by: 1. author 2. title 3. call no. via IBM 083
List the three working decks to produce various sections of book catalog via IBM 407
A


A
Check sorting order and bind sheets to form a 3 page book catalog
Submit all 4 card decks and listings with students name on each to instructor
Individualized student/teacher review and discussion
End exercise

Review:

The following questions may be used to promote class discussion for a review of computer fundamentals. The instructor may present them orally or he may introduce them through a written quiz.

1. Who was Charles Babbage?

   Answer:

   a) A British inventor of the 1800's who developed the idea of the analytical engine which was the forerunner of the modern computer.

2. The two families of computers are: (1)_____ (2)_____.

   Answer:

   (1) analog, (2) digital.

3. What were the characteristics of the first generation computers?

Answer:

1. Very large.

2. Generated large amounts of heat because it employed vacuum tubes and required extensive cooling.

3. Operated in fractions of a second.

4. Processed only one problem at a time.

4. Name two early models of electronic computers.

Answer:

ENIAC UNIVAC I

5. Beyond such technological developments as the transistor and integrated circuits what "intellectual" ability was added to second generation computers which greatly increased their usefulness?

Answer:

A great advance was the stored program and the ability to make decisions to branch.

6. What generation of computers are we presently manufacturing?

Answer:

Third

7. In which areas may we expect improvements in 4th generation computer?

Answer:

1. Greater display capabilities

2. Multiprocessing

3. Multiprogramming

4. Timesharing

5. Total information systems

6. Physically smaller

7. Audio input

8. More optical scanning input

9. Greater direct memory capacity

10. Heuristic programming

11. Less maintenance

8. List the principal pieces of equipment of a computer configuration.

   Answer:

   1. Central Processing Unit

   2. Core Memory

   3. Console

   4. Card Readers

   5. Magnetic Tape Drives

   6. Disk Drives

   7. Card Punch

   8. Printer

9. Describe the direct access method of file organization used on magnetic disk storage. How is the record for a transaction found in such a file?

   Answer:

   Direct access file organization involves the creation of a directory or index of terms to identify each record's addressed location on the disk. The read-head first has to locate the term sought on the directory and then proceed to the disk and track assigned to the record cited by that term.

10. Briefly describe or identify the following:
    1. magnetic core. 2. timesharing. 3. COBOL.
    4. multiprogramming. 5. on-line. 6. track.
    7. debug.

Answer:

1. Magnetic core - tiny, doughnut-shaped ring of ferrite capable of retaining either of two magnetic states. The core can be magnetized in a clockwise direction to store a binary 1, or a counter-clockwise direction to store a binary 0.

2. Timesharing - many users share the time of the computer and have direct and concurrent access to it which appears to be on an exclusive and immediate basis.

3. COBOL - Common Business Oriented Language.

4. Multiprogramming - several programs are maintained in active states. At various times each program is given control of some part of the computer until it is completed or until a new task is brought into the computer.

5. On-line - user has direct access to the computer because the input-output equipment is connected directly to the computer and functions as a part of the computer's processing unit. Two-way communication is implied.

6. Track - on magnetic drum or magnetic disk, the magnetized line of data running around the drum or disk which is read by the read-write head.

7. Debug - to isolate and remove all mistakes from a program.

TEACHER'S GUIDE

UNIT III - SYSTEMS ANALYSIS AND IMPLEMENTATION

Objective A:

To make the student aware of the value of an internal procedural audit of a library and the potential benefits the systems analysis approach can provide.

A good way to develop a basic appreciation of systems analysis is to stimulate discussion about its organizational relationship to library administration. After class discussion, ask each student to write a job description setting forth the objectives and responsibilities of a systems analyst attached to the Librarian's Office. The articles by Tom Minder 4/ and Daniel Simms 5/ can serve as a starter and example. As a result of individual attempts, the instructor can work with the class in developing a composite job description containing all of the elements identified as important by the students.

The following list represents the principal concerns of the systems analyst. In three below, note that the items, when taken together, spell "clairvoyance"--a little of which the analyst is expected to contribute to the solution of every library problem!

1. Basic principles

    a) Know the library's objectives.

    b) Observe the total picture of the library's operations.

    c) Analyze the source, movement, and utilization of data. Use of flowcharting techniques.

    d) Carefully plan implementation. Take the human side into account.

    e) Be sensitive to staff attitudes. Necessity of good interpersonal relations.

2. Management of systems analysis

    a) Feasibility studies.

    b) Specification of requirements.

c) Detailed design.

d) Computer programming and checkout.

e) Computer program functional test.

f) Installation and implementation of the system.

g) Maintenance.

3. What to expect from a systems analyst

a) Cost data - comparative costs, conversion and running costs, capital costs, contracting costs if applicable.

b) Labor - effects of automation on personnel employment, balance of clerical and professional staff.

c) Administration - functional organization of the system, lines of staff responsibility, changes in organization chart.

d) Integrated plan - viewing of the library as a total entity, even though the application may affect only one area. Transitional problems.

e) Relationships - effects of the new system on users, library staff, and even National library programs, as MARC, MEDLARS, etc.

f) Value to the user - benefits for the user.

g) Objectives - must coincide with the real objectives of the library. Clear description of objectives is necessary.

h) Yardstick - adequate methods of continuous evaluation of the system must be provided.

i) Advantages - immediate and long-range advantages.

j) Nettlesome problems - possible hazards, things which could go wrong. A knowledge of the critical points in the system is being prepared.

k) Communication - provision for adequate communication between the analyst and the library staff while system is being prepared.

1) Equipment - implications of having equipment in the library, including noise problems, security, etc. Lease versus purchase.

Objective B:

To provide the student with an appreciation of the investigative processes required to analyze a library process and the technique of diagramming the process in the form of a flowchart.

Flowcharting Exercise:

Construct a flowchart consisting of not over fifty symbols, which is a reflection of the path a serial takes from the time it arrives at the library, until the time it is placed on the shelf ready for the user.

In order to perform this exercise most effectively, the instructor should either make arrangements personally, or have the student make prior arrangements, to visit a library technical processing department. The route that a serial takes and processing associated with this routing should be recorded by the student and later presented to the instructor in the form of a flowchart. The student should be reminded of the fifty symbol maximum for this exercise and not be permitted to delve in too great detail into serial routing and processing.

The fact that flowcharting is a tool should be stressed. The use of flowcharting to describe a process does not necessarily imply any mechanization. Manual or automated processes are equally amended to analysis by flowcharting techniques.

Flowcharting conventions vary. For this exercise, the precise form is not important, only the practice of analyzing and recording the process.

Objective C:

To demonstrate the critical importance of paying strict attention to costs and cost analysis in the design process.

A practice problem may be used to calculate the costs of converting a library shelf list to machine-readable form as follows:

Laboratory Exercise: Shelf List Conversion Estimates via Computer Timesharing Service

Exercise Objective:

1. To give the student the opportunity of executing a real computer program at a remote location.

2. To provide a real example of some of the factors, and their relationship, involved in shelf list conversion projects.

Suggested Equipment, etc.:

Access to General Electric's Mark II timesharing service (a user number)

Use of suitable computer terminals, i.e., Model 33 teletype, etc.

Dedicated telephone line

Punched paper tape containing source listing of the program "CONVERT". (Listing follows)

```
CONVERT     13:23EDT    09/24/71


ENTER PROGRAM VARIABLES AS FOLLOWS;

ANNUAL KEYPUNCH OPERATOR SALARY = ? 7200.00

KEYSTROKES PER HOUR = ? 5500

NUMBER OF SHELFLIST ENTRIES = ? 1000000

AVERAGE NUMBER OF CHARACTERS PER ENTRY = ? 275

COST OF TAB CARDS PER 1000 = ? 1.14

MONTHLY CARDPUNCH MACHINE RENTAL = ? 68.27

NUMBER OF WEEKS ALLOWED FOR CONVERSION= ? 52


BASED ON THE ABOVE DATA, THE FOLLOWING HAVE BEEN CALCULATED;

TOTAL CHARACTERS =  2.75E+8
NUMBER OF OPERATORS AND MACHINES REQUIRED =  24.0385  OR  25
TOTAL PERSONNEL COST = $180000.00
TOTAL MACHINE RENTAL COST =  $22187.75
TOTAL TAB CARD COST =   $3918.75

TOTAL CONVERSION COSTS = $206106.50
TOTAL PER ENTRY CONVERSION COSTS =       $.21


DO YOU WISH ANOTHER CASE (Y/N)? N
```

```
CØNVERT


100 REM 'CØNVERT' BIBLIØGRAPHIC CØNVERSIØN PRØGRAM
110 REM WRITTEN FØR GENERAL ELECTRIC - MARK II
120 REM BY: JACK A SPEER - BECKER AND HAYES, INC. - 1971
130 REM
140 REM
150 L(0) = 1
160 L(1) = 10
170 CHANGE L TØ L$
180:$$$$$$$.##
190 FØR N = 1 TØ 9
200 PRINT L$;
210 NEXT N
220 PRINT "ENTER PRØGRAM VARIABLES AS FØLLØWS; "
230 PRINT
240 PRINT "ANNUAL KEYPUNCH ØPERATØR SALARY = ";
250 INPUT S1
260 PRINT
270 IF S1 > 10000 THEN 240
280 IF S1 < 4000 THEN 240
290 PRINT "KEYSTRØKES PER HØUR = ";
300 INPUT K1
310 PRINT
320 IF K1 > 10000 THEN 290
330 IF K1 < 4000 THEN 290
340 PRINT "NUMBER ØF SHELFLIST ENTRIES = ";
350 INPUT E1
360 PRINT
370 IF E1 > 10000000 THEN 340
380 IF E1 < 1 THEN 340
390 PRINT "AVERAGE NUMBER ØF CHARACTERS PER ENTRY = ";
400 INPUT C1
410 PRINT
420 IF C1 > 1000 THEN 390
430 IF C1 < 100 THEN 390
440 PRINT "CØST ØF TAB CARDS PER 1000 = ";
450 INPUT C2
460 PRINT
470 IF C2 > 3.00 THEN 440
480 IF C2 < .75 THEN 440
490 PRINT "MØNTHLY CARDPUNCH MACHINE RENTAL = ";
500 INPUT R1
510 PRINT
520 IF R1 > 120.00 THEN 490
530 IF R1 < 40.00 THEN 490
540 PRINT "NUMBER ØF WEEKS ALLØWED FØR CØNVERSIØN= ";
550 INPUT N1
560 PRINT
570 IF N1 > 60 THEN 540
580 IF N1 < 1 THEN 540
590 PRINT
```

CONVERT CONTINUED

```
600 PRINT "BASED ON THE ABOVE DATA, THE FOLLOWING HAVE BEEN CALCULATED;"
610 PRINT
620 PRINT "TOTAL CHARACTERS = ";C1*E1
630 PRINT "NUMBER OF OPERATORS AND MACHINES REQUIRED = ";
640 N2=(C1*E1)/(K1*40*N1)  'DECIMAL NUMBER REQUIRED
650 I2=INT(N2+.999)
660 PRINT N2;" OR ";I2
670 PRINT "TOTAL PERSONNEL COST = ";
680 D1=I2*N1*(S1/52)  'PERSONNEL COST
690 PRINT USING 180,D1
700 PRINT "TOTAL MACHINE RENTAL COST = ";
710 D2=I2*R1*INT(N1/4+.999)  'MACHINE COST
720 PRINT USING 180,D2
730 PRINT "TOTAL TAB CARD COST = ";
740 D3=((C1*E1)/(80*1000))*C2  'COST OF CARDS
750 PRINT USING 180, (((C1*E1)/80)/1000)*C2
760 PRINT
770 PRINT "TOTAL CONVERSION COSTS = ";
780 PRINT USING 180, D1+D2+D3
790 PRINT "TOTAL PER ENTRY CONVERSION COSTS = ";
800 PRINT USING 180, (D1+D2+D3)/E1
810 PRINT
820 PRINT
830 PRINT "DO YOU WISH ANOTHER CASE (Y/N)";
840 INPUT R$
850 IF R$ = "Y" THEN 190
860 IF R$ = "N" THEN 880
870 GO TO 830
880 END
```

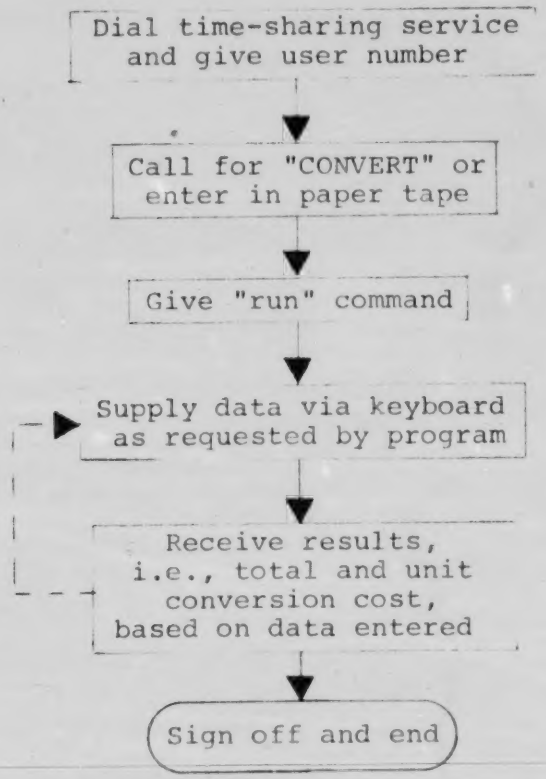
Program Description:

The program named "CONVERT" (Bibliographic Conversion Cost) is written in the General Electric Mark II BASIC programming language. The program is highly interactive and provides the user with the capability to supply varying data as it is requested by the program when executing.

The instructor and/or student is invited to change and enhance this demonstration program and even adapt its use for an actual application. The program automatically range checks all incoming data for reasonableness. The request for data is repeated until the data falls within the acceptable range. This range can be adjusted.

The program is also of the reiterative type. Thus, it can be re-executed without exiting from the running program by merely answering "y" (yes) to the inquiry "do you wish another case" at the conclusion of each run.

Program Execution:


Dial time-sharing service and give user number
Call for "CONVERT" or enter in paper tape
Give "run" command
Supply data via keyboard as requested by program
Receive results, i.e., total and unit conversion cost, based on data entered
Sign off and end

TEACHER'S GUIDE

UNIT IV - MARC PROGRAMS

Objective A:

To familiarize the student with the MARC format for monographs by practice editing of a number of LC catalog records.

Editing of MARC records is a complex operation and will not be mastered without expert instruction and considerable practice. Nevertheless, some practice with editing of full LC records will give the student an appreciation of the difficulties involved and a respect for the complexities of a bibliographic record. While simplified bibliographic entries could be used, this only gives a false impression of the problem.

It is suggested that the students study the MARC Manuals vol. 2 - Data Preparation Manual: MARC Editors 6/ before starting to edit records, and thereafter use it as a reference manual.

Samples of edited records shown as Figure 1 may be distributed as handouts.

The worksheet used for the samples of printed cards is one proposed for LC internal use. Figure 2 shows a similar worksheet used for purposes of inputting original cataloging. This version of the worksheet is also shown as a blank form (Figure 3) which may be reproduced for use as practice worksheets.

In the sample records, LC catalog cards showing the symbol MARC are considered to be full level records and do not require any code to be input for Encoding Level (Box 1). Original cataloging is done with book in hand and is assumed to be a full level record also. LC cards not carrying the MARC symbol are considered to be Sublevel 1 and a "1" is therefore entered in Box 1 (see MARC Manuals, 2d edition, vol. 2, p. 157).

The examples of original cataloging do not necessarily reflect titles for which LC catalog data is unavailable, but show the use of the form when a catalog card is not used as the source document. D is used as the Cataloging Source code (Box 29) for original cataloging.

Samples of unedited LC cards (Figure 4) are reproduced for use in practice editing. Additional English language records may be supplied by the teacher as desired.

Objective B:

To promote an understanding of the format recognition process developed by the Library of Congress for MARC records.

Format recognition is a significant development for the conversion of LC bibliographic records to machine-readable form, either for current or retrospective records. The programs are expected to be made available outside of LC. To use or to adapt these programs for local use will require an in depth understanding of the techniques involved.

Students should study the published documentation 7/ in detail and try to duplicate the simulation of technique used by LC to test out the logic of the process on the same records which they use for manual editing practice.

TEACHER'S GUIDE

UNIT V - LIBRARY CLERICAL PROCESSES

Objective A:

To give the student an appreciation for 1) the interrelated nature of technical services applications, 2) the need for planning an integrated system, 3) the centrality of the bibliographic record and 4) the implications of MARC for technical services automation.

Working in small groups, students will design a complete technical services system for an individual college library. This design will effectively synthesize much of what has so far been taught in the course.

The subsystems to be included in the project design are: selection, ordering, cataloging, catalog preparation, and circulation. Serials and non-print materials are excluded for purpose of this project.

Assuming that not all systems can be implemented at once, the most appropriate sequence of implementation should be indicated and justified.

The level of detail should be sufficient to show the source of bibliographic records and trace their course throughout the generation of all products and information. The design should be a synthesis of concepts learned thus far in the course.

The salient features of the several designs should be presented orally to the class in the form of a panel discussion. If facilities permit, transparencies or flip charts may prove useful for putting across the design features. Panel members and other students should be encouraged to question or critique the designs following the several presentations.

Objective B:

To generate some specific thinking about what management at different levels wants to know about the library--and how the information can be provided through an administrative data processing subsystem.

One of the libraries hypothesized under Objective A may be selected for analysis by all groups under Objective B. Each group will represent the management of one subsystem, or higher management level of the selected library, as follows:

Head of Ordering
Head of Cataloging
Head of Circulation
Head of Technical Processing
Head Librarian

Each group should list the kinds of information which it would want to have generated by the system and where possible, what the source of the information would be.

One of the lists produced should be selected for reproduction and distribution to all members of the class. Students in class session should then have an opportunity to comment on or question the group responsible for the selected list. Through this process, a "master" list can be developed reflecting to some reasonable degree the considered opinion of the class as a whole.

TEACHER'S GUIDE

UNIT VI - REFERENCE SERVICES

Objective A:

To promote an understanding of the techniques, utility, and problems of searching a bibliographic data base for records with certain characteristics.

Project:

The LEEP Project 8/ 9/ 10/ 11/ at Syracuse University developed a laboratory in which students could search MARC I tapes for class assignments or for independent research. The Project represents a significant new approach in library school teaching which should be investigated and evaluated by library school students and faculty. In addition, the literature provides a very detailed report on the search processes used and on the assignments and special projects to which the systems were applied.

It is suggested that literature on the project by studied, that a panel discussion be held with students as panel members to discuss the set up of the laboratory, the Document Processing System (DPS) and the Management On-Line Data System (MOLDS) used for retrieval, and the pros and cons of establishing such a laboratory locally. Possibly an interested faculty member would like to be a member of the panel.

Objective B:

To give students a more in depth understanding of the scope of SDI systems. Existing systems illustrate not only a variety of search techniques and profile construction methods but application of SDI to a variety of materials and for a variety of purposes.

Designated students may perform a literature search to find a broad variety of SDI applications. The class may select the most promising five or six applications and two students could share responsibility for an oral report of each application selected. Another student may be assigned to summarize the reports.

Each report should include:

1. Subject coverage
2. Clientele served
3. Products distributed
4. Types and sources of records searched
5. Fields searched in the record
6. Source of index terms
7. Construction and maintenance of profiles
8. Evaluation of the service

Objective C:

To give the student a comprehension of the variety of content and format, and the problems of creating an acceptable catalog description of mechanized information services.

Using the section on Cataloging Magnetic Tape Data Bases in Hayes and Becker's Handbook of Data Processing for Libraries 12/ as a starting point, the students may form an ad hoc committee to determine the rules for cataloging this new resource. The committee should be prepared to defend inclusion of each data element or rule before an open hearing of the class. Results of the work of the ALA subcommittee, when available, should be compared and discussed.

TEACHER'S GUIDE

UNIT VII - RELATED TECHNOLOGIES

Objective A:

To investigate micrographic services available to libraries and to consider the problems related to the use of microforms.

Suggested activities include:

1. Secure examples of reader and reader/printer equipment and of microforms which will illustrate the problems of accessing a particular item of information.

2. Organize class into teams to investigate and report on the following topics. The purpose is to bring the class as much information as possible about problems at the cutting edge of the field.

   a) What are the compatibility problems which libraries face in the selection of microfilm systems?

   b) Describe the commercial microform services available to support technical processing and reader serivce work.

   c) What is the state of the art in the development of a "cuddly" portable microfiche reader?

   d) What is "COM" - Computer Output Microfilm?

   e) Report on the use of COM in the production of library catalogs in both film and printed form.

   f) Define the main sources of microform production for out-of-print material, government documents, books, journals, etc.

   g) What is the status of color microfiche?

   h) Which are the principal reference tools for evaluating microfilm equipment?

i) Compare ALA microfilm standards with those of COSATI.

j) Prepare a vertical file on viewing and copying equipment for sale by: Recordak Co., 3-M Co., and Xerox.

k) Review Library Literature and report on recent (past 2 years) applications of microfilm to library functions.

l) Investigate the copyright problem with respect to microform duplication.

m) List the advantages and disadvantages of purchasing ultrafiche libraries such as those offered by Encyclopaedia Brittanica and National Cash Register Company.

3. Contact the National Microfilm Association (NMA), Annapolis, Maryland, to arrange to borrow from their excellent collection of slides depicting the equipment and services of companies in the micrographics field. The students may also wish to be aware of the various NMA and other services for their continuing education in this field.

4. Have groups of students report on one of the following topics:

   a) The purposes for which library catalogs have been microfilmed, the technique used, success of the project, and any unanticipated uses that have been developed.

   b) The problems of updating microfilm catalogs, or of meshing a microfilm catalog with an on-going catalog in a different form.

   c) The acceptance or lack of acceptance of microfilm catalogs to library staff and clientele.

Objective B:

To create awareness on the part of the student of the potential and problems of computer-switched audio-visual instruction and study facilities.

1. Have each group of students select one installation of dial-access facilities and analyze it insofar as existing literature permits (or other information can be obtained) with respect to its administration, operational aspects, programming; architectural and engineering considerations (especially if a new building was involved); its relation to the library and library programs; student, faculty and administration evaluation of the service; problems, costs, etc.

Objective C:

To familiarize the student with the decisions which must be made, the information on which they must be based, the characteristics and requirements of the various signal carriers and the equipment involved.

1. Arrange for student to attend demonstrations of various communications equipment at local AT&T or Western Union offices.

2. Arrange for a knowledgeable representative from AT&T or Western Union to discuss in an informal session with relatively small groups of students the services and facilities in use in the local area.

3. Have individuals or groups of students present reports on timely topics involving communications and especially educational uses of communications. Examples: CATV and satellite channels for educational use, copyright questions, FCC rulings regarding microwave carriers, etc.

TEACHER'S GUIDE

UNIT VIII - LIBRARY NETWORKS

Objective A:

To design a "model" network of all types of libraries of a hypothetical state for the purpose of analyzing factors in network design and their interrelationships.

Project:

Any network must take into account the population content, geographic configuration, social conditions, economic situation, and the political climate of the state. In addition, all aspects of the library picture in the state must be considered--philosophy, legislation, support, collections, physical facilities--and above all, people.

Nevertheless, a tentative ideal or model can be postualted which is subsequently adjusted in accordance with a specific situation. The resulting configuration may bear no resemblance to the model, but it will not be simply an ad hoc conglomeration.

Students may form groups of four or five and each group prepares a model independently, so that the several approaches may be compared and discussed upon completion.

Certain assumptions must be made. The "state of the art" is as of now--the date the model is undertaken--with respect to technologies involved. The status of library automation--and the climate in which it is developing--is also as of today. Where major uncertainties exist as to future programs, e.g. whether an on-going RECON program will develop, students may postulate a program or its absence, or provide alternative solutions.

No attempt need be made to cost out network plans, for this is too complex a task for this assignment. Students should not attempt to calculate the amount of communication traffic nor propose specific communications facilities. The empahsis is rather on

the general pattern of communications, although tentative prediction of types of communications facilities could be made.

Rather than start from scratch on the design of a network, students may find it more rewarding to start with plans already designed for the states of Washington 13/ and Wisconsin 14/, and to critically examine these plans (both plans were designed by Joseph Becker and Robert M. Hayes and are similar in concept) and to suggest changes or totally new plans as desired.

Additional information on the Washington network plans is available in a study of network alternatives by Reynolds and others 15/ which found an overall statewide configuration more cost effective than one which features geographic area groups. Plans for directory and catalog services for Washington State have been described by Pulsifer 16/ at the Clinic on Library Applications of Data Processing. The Wisconsin plan is summarized by Becker and Hayes in the Wisconsin Library Bulletin. 17/

A methodology for network planning, described by Maryann Duggan in the Journal of Library Automation, 18/ will also be of interest.

The attached materials are extracted from the two network plans and may be reproduced as handouts for the student. Availability of the other materials cited is assumed.

Students should devote particular attention to the matters of standards, compatibility, and the relationship of the network to national programs, e.g. MARC, CIP.

The design need not be developed in great detail nor described at great length. It should answer the following questions:

What type of agency would be responsible for planning the network?

What type of agency should be responsible for organization of the network?

What type of agency should be responsible for systems design and implementation?

What services will the network perform?

How should developmental and operational phases be financed?

What are the characteristics of the communications system that will be needed?

What are the characteristics of the computer system that will be needed?

How will network services interface with individual library services?

How will network services interface with multistate groupings, if any, and with national services and organizations?

What standards will be followed?

What will be the sequence of organizational steps required?

What will be the sequence of implementation of the resources services?

References*

1/ Hayes, Robert M. and Joseph Becker. Handbook of data processing for libraries. New York, Wiley-Becker-Hayes, 1970, p. 790-813.

2/ Mason, Ellsworth. The great gas bubble prick't; or, computers revealed--by a gentleman of quality. College & Research Libraries 32 (May 1971) 183-196.

3/ Licklider, J. C. R. Libraries of the future. Cambridge, Mass., M.I.T. Press, 1965.

4/ Minder, Thomas. Library systems analyst--a job description. College & Research Libraries 27 (July 1966) 271-276.

5/ Simms, Daniel M. What is a systems analyst? Special Libraries 59 (November 1968) 718-721.

6/ U.S. Library of Congress. Information Systems Office. Data Preparation manual: MARC editors. 3d ed., April 1970. In Its MARC manuals used by the Library of Congress, 2d ed. Chicago, American Library Association, Information Science and Automation Division, 1970, vol. 2.

7/ U.S. Library of Congress. Information Systems Office. Format recognition process for MARC records: a logical design. Chicago, American Library Association, 1970.

8/ Atherton, Pauline and John Wyman. Searching MARC tapes with IBM/Document Processing System. In American Society for Information Science, Annual Meeting, 1969. Proceedings, vol. 6, p. 83-88.

9/ Atherton, Pauline and Judith Tessier. Teaching with MARC tapes. Journal of Library Automation 3 (March 1970) 24-35.

*Films are listed separately following the References.

10/ Atherton, Pauline and Karen B. Miller. LC/MARC on MOLDS, an experiment in computer-based interactive bibliographic storage, search, retrieval, and processing. Journal of Library Automation 3 (June 1970) 142-165.

11/ Atherton, Pauline. Development of a computer-based laboratory for library science students using LC/MARC tapes. Final report. Syracuse, N.Y., Syracuse University School of Library Science, January 1970. ED 037 224.

12/ Hayes. Handbook of data processing for libraries, p. 716-722.

13/ Becker, Joseph and Robert M. Hayes. A proposed library network for Washington State: working paper for the Washington State Library. September 1967.

14/ Wisconsin. Department of Public Instruction. A plan for a Wisconsin library and information network: knowledge network of Wisconsin. Madison, Department of Public Instruction, 1970.

15/ Reynolds, Maryan E. and others. A study of library network alternatives for the state of Washington. Final report. Olympia, Washington State Library, November 1970. ED 045 862.

16/ Pulsifer, Josephine S. MARC book catalog production in Washington State. In Clinic on the Library Applications of Data Processing. Proceedings, 1970. Urbana, University of Illinois Graduate School of Library Science, 1971, p. 53-65.

17/ Becker, Joseph and Robert M. Hayes. Wisconsin library and information network plan. Wisconsin Library Bulletin 66 (November-December 1970) 372-381.

18/ Duggan, Maryann. Library network analysis and planning (Lib-NAT). Journal of Library Automation 2 (September 1969) 157-175.

FILMS

A Computer glossary, by Charles Eames. 16 mm. 15 minutes, sound color. International Business Machines Corporation.

The Information machine, by Charles Eames. 16 mm. 10 minutes, sound,color. International Business Machines Corporation.

Living machines. 60 minutes. Available from National Film Board of Canada, Ottawa.

Machines that think. 29 minutes. Argonne National Laboratory. Available from Atomic Energy Headquarters Film Library, Division of Public Information, U.S. Atomic Energy Commission, Washington, D.C. 20545.

SPIRES/BALLOTS report, no. 7789. 16 minutes, sound, color. Available from University of California, Extension Media Center, 2223 Fulton Avenue, Berkeley, California 94704, 1970.

Thinking machines. 19 minutes. Available from Educational Testing Service, Princeton, New Jersey.

F I G U R E 1

EDITED RECORDS - LIBRARY OF CONGRESS CARDS

BOOK WORKSHEET (MONOGRAPHIC)

mo

ltn ☐
ENG

ffd

utl

Type of Rec: a

Bib Lev

Cont: 2 | Index: 4

rem

Mt in Body: X (5) | Pub in Mt: (6)

edn

Fest: (3) | Intell Level: (16)

imp

Fiction: (11) | Biog: A (12)

col

illus. cm.

Subj in Mt: X (13) | P Dat Key: S (20)

se

Date1: 1970 (21)

Date2: (22)

MEPS
TILA c
IMP
COL
SERU
NOA
SUTC
AMPSA de
CAL
DDC
CRD

Williams, Billy.
Iron man, by Billy Williams, with Rick Simon. [Chicago,] Childrens Press, [1970]
64 p. illus., ports. 18 cm. (Open door books)
A record breaking pro baseball player tells about his childhood as a black boy in Alabama.

1. Baseball—Biography. I. Simon, Richard Edward, 1945- joint author.
GV865.W43 A3
796.357'0924 [B] [92]
74-121037
MARC
Library of Congress 70 rev

Country: ILU (23) | Repro Fm: (25)

Content Fm: (26) | Bib Lev: m (27)

Mod Rec: (28) | Cat S: (29)

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Country DCU | Repro Fm
23 | 25

Contents Fm | Gov Pub m
26 | 27

Mod Rec | Cat S
28 | 29

MECP

TILA fb
IMP
COL c
NOG
NOG/2

SUT xz
CAL
DDC
CRD

U. S. Congress. House. Committee on Merchant Marine and Fisheries. Subcommittee on Coast Guard, Coast and Geodetic Survey, and Navigation.

Towboat crew licensing. Hearings, Ninety-first Congress, first session, on H. R. 13957, H. R. 14186 ... Washington, U. S. Govt. Print. Off., 1970.

vi, 271 p. 24 cm.

Hearings held Oct. 8-Nov. 13, 1969.
"Serial no. 91-16."

1. Towing - Law and legislation - U. S. I. Title

KF27.M386 1969a 340 76-605878
MARC

Library of Congress

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BOOK WORKSHEET (MONOGRAPHIC)

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Biog

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Subj is Mtl

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Pe

Toxicity of anesthetics; proceedings of a research symposium held in Seattle, May 12-13, 1967. Edited by B. R. Fink. Baltimore, Williams & Wilkins, 1968.

xiii, 332 p. illus. 24 cm.

Includes bibliographies.

Country

Repro Fm

Contents Fm

Bib Lev: m

Mod Rec

Cat S

TILN bc
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NOB

SUT xx
AEPSA e
CAL
DDC
CRD

1. Anesthetics—Toxicology—Congresses. I. Fink, Bernard Raymond, ed.

RD79 T685 615'.781 68-22713

Library of Congress 3,e

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Country | Repro Fm

Contents Fm | Bib Lev: m

Mod Rec | Cat S

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MEPS
TILA/c
IMP
COL
SERU
PRI
NOA
SUT/
SUTC/2
AEPSS/c
AEDS/2
CAL
DDC
CRD

Smithline, Frederick.
Answers about the human body. Illustrated by Darrell Sweet. New York, Grosset & Dunlap, [1969,

60 p. illus. (part col.) 20 cm. (Answers about) 1.95

Answers to sixty-three questions about the human body provide a description of human anatomy, the functions of the body's parts and systems, and proper health care.

1. Body, Human—Juvenile literature. [1. Anatomy, Human] Sweet, Darrell, illus. II. Title. [II. Title: The human body.

QP37.S60 612 70-80701 MARC-c

Library of Congress 70 [3]c

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Post 9 | Intell Level 10

Fiction 11 | Biog 12

Subj in Mt 13 | P Dat Key S 20

Date1 1969

Date2 21

22

Country IAU 23 | Repro Fm 24

Contents Fm 26 | Bib Lev m 27

Mod Rec 28 | Cat S 29

gac

MEPS d
TILA c
IMP
COL c
SERU
NOB
SUPS dx
SUPF cdx/2
AEPSS de
CAL
DDC
CRD

Shakespeare, William, 1564-1616.
Antony and Cleopatra. Edited by C. J. Gianakaris.
Dubuque, Iowa, W. C. Brown [1969]
xvi, 89 p. 28 cm. (The Blackfriars Shakespeare)
Includes bibliographical references.

1. Antonius, Marcus, 83?-30 B. C.—Drama. 2. Cleopatra, Queen of Egypt, d. 30 B. C.—Drama. I. Gianakaris, C. J., 1934- ed. II. Title.

PR2802.A2G5 822.3'3 79-6256
MARC

Library of Congress 69-2

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BOOK WORKSHEET (MONOGRAPHIC)

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Fiction: 11 | Biog: 12

Subj in Mil: 13 | P Dat Key: S 20

Date1: 1967 21

Date2: 22

Country: II 23 | Repro Pm: 25

Contents Pm: 26 | Bib Lev: m 27

Mod Rec: 28 | Cat S: 29

gac

MEPS de
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NOG
NOB/2
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SUT/2
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CAL
DOC
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Shah, Amritlal B ⊙ A ∩ 1920- A ∩ comp.
Cow-slaughter; horns of a dilemma. Edited by A. B. Shah. Bombay, Lalvani Pub. House, 1967.

82 p. 23 cm. Rs 9.75

At head of title: Indian Renaissance Institute.
Bibliographical footnotes.

1. Cattle--India. 2. Cows (in religion, folk-lore, etc.) I. Indian Renaissance Institute. II. Title: C

BL1215.C7S5 294.5'21 S A 68-16266
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PL 480: I-E-9009

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AEPSA‡e
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Knorr, Klaus Eugen, 1911-
Contending approaches to international politics, edited by Klaus Knorr and James N. Rosenau. Princeton, N. J., Princeton University Press, 1969.

297 p. 23 cm. 7.50

"Published for the Princeton Center of International Studies."
Bibliographical footnotes.

1. International relations—Study and teaching—Addresses, essays, lectures. I. Rosenau, James N., joint author. II. Princeton University. Center of International Studies. III. Title.

JX1291.K6 327 68-27404

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Country: PAU | Repro Fm

Contents Fm: m | Bib Lev

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Kenny, Carla.
The art of papier mâché [by] Carla and John B. Kenny. With drawings and photos. by the authors. [1st ed.] Philadelphia, Chilton [1968]
xiv, 143 p. illus. 27 cm.

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1. Papier-mâché. I. Kenny, John B., joint author. ~~II. Title.~~

TT870.K4 745.54 68-26188

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Imperial Chemical Industries of Australia & New Zealand.
Tower Hill / by Imperial Chemical Industries of Australia and New Zealand and Fisheries and Wildlife Department, Victoria. [Melbourne? 1966?]

13 p. illus., maps. 24 cm. unpriced Aus 68-3757

"Historical material from History of Tower Hill to 1892, by M. C. Downes."

1. Tower Hill (Wildlife refuge) I. Downes, M. C. II. Victoria, Australia. Fisheries and Wildlife Dept. III. Title.

S964.A5 6 1966 719'.36'09945 74-141401
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Hunt, Richard N. comp.

The creation of the Weimar Republic; stillborn democracy? Edited, with an introd., by Richard N. Hunt. Lexington, Mass., Heath [1959]

xiv, 106 p. 24 cm. (Problems in European civilization)

Includes bibliographical references.

1. Germany—Politics and government—1918-1933. 2. Germany—History—Revolution, 1918. 3. Versailles, Treaty of, June 28, 1919 (Germany) [Title] [Series]

DD231.H18 320.9'43 79-76739 MARC

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Hislop, Marion.
Arcola and south of the Moose Mountains, 1882-1967 / by Marion Hislop and Ada McLellan. Altona, Manitoba : D. W Friesen, 1967.
84 p. : illus. ; 23 cm. unpriced

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1. Arcola, Sask. I. McLellan, Ada, joint author. II. Title.

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Hillgarth, J⊙ Δ ⊂ N⊙, Δ ⊂ ‡*comp.*
The conversion of Western Europe, 350–750.‡Edited by J. N. Hillgarth. Englewood Cliffs, N. J.,‡Prentice-Hall ‡,1969,

xi, 147 p.‡map;‡22 cm. (Sources of civilization in the West)
4.95

A Spectrum book.
Includes bibliographical references.

1. Church history—Middle Ages—Sources. ~~+ Title~~ ~~(Series)~~

BR200‡H5 274 69-17378
SBN 13-872163-1 ~~MARC~~

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Ehrle, Raymond A⊙A⌒‡*comp.*
Counseling in the public employment service.‡ Raymond A. Ehrle, editor. Washington,‡ Leviathan Publishers ‡ (‡1966)
xii, 358 p.‡ map‡ 24 cm.
Includes bibliographies.

Country: DCU | Repro Fm

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1. U. S.‡ Employment Service. 2. Vocational guidance—U. S.
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HD5875‡E5 353.001'625 78-7427
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Delany, Samuel R

The towers of Toron‡b by, Samuel R. Delany. London, ‡b Sphere, ‡c 1968.

140 p. ‡c 18 cm. (Sphere science fiction) 5/- B69-01124

~~1 Title~~

PZ4.D395‡c To 3 823'.9'14 78-515725

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Chris.

Apache odyssey; a journey between two worlds, by Morris E. Opler. New York, Holt, Rinehart and Winston [1969]

xvi, 301 p. illus., maps 24 cm. (Case studies in cultural anthropology)

Consists chiefly of the autobiographical narrative of Chris, a Mescalero Apache Indian, with introductory material and notes by M. E. Opler.

1. Apache Indians. 2. Opler, Morris Edward, 1907- ~~II. Title~~ ~~I. Series~~

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Blake, Robert Rogers, 1918-

Corporate excellence through grid organization development, by, Robert R. Blake, and, Jane Srygley Mouton. Houston, Tex., Gulf Pub. Co., 1968,

xv, 374 p. illus. 23 cm.

Includes bibliographical references.

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1. Industrial management. 2. Industrial sociology. 3. Organizational research. I. Mouton, Jane Srygley, joint author. ~~II. Title.~~ Grid organization development.

HD3 B58 658 68-21510

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Clifton, James A. (James Alexander), comp.

Applied anthropology: readings in the uses of the science of man, edited by James A. Clifton. Boston, Houghton Mifflin [1970]

xviii, 286 p. illus. 23 cm. (Resources for the study of anthropology)

Bibliography: p. 275-286.

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1. Applied anthropology—Addresses, essays, lectures. ← Title

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EDITED WORKSHEETS - ORIGINAL CATALOGING

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Burgin, Richard.

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tilA Conversations with Jorge Luis Borges.

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Computer methods in mathematics‡
[by] Robert L. Albrecht, Eric Lindberg
[and] Walter Mara.

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Menlo Park, Calif.,‡Addison-Wesley Pub. Co.‡

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204 p. ‡illus. ‡28 cm.

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SUTL‡x
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AEPSA‡e
AEPSA‡e/2

Bibliography: p. 202.
1. Electronic data processing--Mathematics.
2. Electronic calculating=machines.
3. Programming languages (Electronic computers)
I. Lindberg, Eric,‡joint author.
II. Mara, Walter, joint‡author.

Country: CAU | Repro Fm

Content Fm: B | Bib Lev: m

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Zamansky, Marc.

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Linear algebra and analysis ǂ[by] M. Zamansky.

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London, ǂPrinceton [etc.] ǂVan Nostrand ǂ[1969]

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xii, 466 p. ǂ24 cm.

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[The New university mathematics series]

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SUTL 1. Mathematical analysis.
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Country 23 | Repro Fm 25

Contents Fm 26 | Lib Lev m 27

Mod Rec 28 | Cat S 29

Comparative nutrition of wild animals. (The proceedings of a symposium held at the Zoological Society of London on 10 and 11 November 1966) Edited by M. A. Crawford. London, Published for the Zoological Society of London by Academic P., 1968.

xix, 429 p. illus. (part col.) 24 cm. (Symposia of the Zoological Society of London, no. 21) unpriced (B***)

Includes bibliographies.

1. Nutrition—Congresses. 2. Vertebrates—Congresses. I. Crawford, M. A., ed. II. Zoological Society of London. (Series: Zoological Society of London. Symposia, no. 21)

QL1.Z733 no. 21 636.08'5 68-17679

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Mod Rec	Cat S
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Stevens, Henry Newton, 1855–1930.
Comparative cartography, by Henry Stevens and Roland Tree. London, Map Collectors' Circle, 1937.

12, [2], 305-308 p. 23 cm. (Map Collectors' Circle. Map collectors' series, no. 39) unpriced

(B***)

First published in Essays honoring Lawrence C. Wroth, Portland, Me., 1951.

I. American—Maps—Bibliography. I. Tree, Roland, Joint author. II. Title. (Series)

Z[illegible] no. 39 016.91973 73-363881

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Mod Rec: 28 | Cat S: 29

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Marco Surveys, ltd.

Comparative change in public opinion, 1964–1966, Nairobi, Dar es Salaam, Kampala: issues of national importance. Nairobi, 1966.

iii, 45 l. 26 cm. (*Its* Public opinion poll, no. 14)

Cover title.

1. Public opinion—Africa, East. 2. Africa, East—Soc. condit. I. Title. (Series)

DT421.M37 no. 14 68-219

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Ritter, Karl, 1779–1859.

The comparative geography of Palestine and the Sinaitic Peninsula, by Carl Ritter. Translated and adapted to the use of Biblical students by William L. Gage. New York, Greenwood Press, 1968.

4 v. illus. 23 cm.

Reprint of the 1868 ed.
Translation in part of Erdkunde von Asien.
Bibliographical footnotes.

1. Palestine—Description and travel. 2. Sinaitic Peninsula—Description and travel. 3. Bible—Geography. I. Gage, William Leonard, 1832-1880, tr. II. Title.

DS107.R563 1968 915.694 69-10151

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Tebbel, John William, 1912-
The compact history of the American newspaper [by] John Tebbel. New and rev. ed. New York, Hawthorn Books [1969]
286 p. 24 cm. 6.95
Bibliography: p. 269-274.

1. American newspapers—History. 2. Journalism—U. S. I. Title

PN4855.T4 1969 071'.3 69-20347
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Country 23 | Repro Fm 25

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Illus. cm.

Gt. Brit. *Laws, statutes, etc.*
Companies: law and practice, by S. W. Magnus and M. Estrin. 4th ed. London, Butterworths, 1968.
lxii, 1143 p. forms. 26 cm. 7/15/- B68-17283
First and 2d ed. published under title: The Companies act, 1948.

1. Corporation law—Gt. Brit. I. Magnus, Samuel Woolf, ed.
II. Estrin, Maurice, ed. III. Title.

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Content Pm | Bib Lev: m
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Richie, Donald, 1924–
Companions of the holiday; a novel. New York, Walker/Weatherhill [1968]
197 p. 22 cm. 4.95
"A Weatherwark edition."

1. Title.

PZ4.R528Co [PS3568.I31] — 813'.5'4 — 68-28770

Library of Congress 3

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Kaplansky, Irving, 1917-
Commutative rings. Boston, Allyn and Bacon [1970]
x, 180 p. 24 cm.
Bibliography: p. 169-171.

1. Rings (Algebra) 2. Modules (Algebra) I. Title.
QA247.K3 1970 512'.815 71-102550
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Compact English-Italian dictionary. Piccolo dizionario italiano-inglese. London, Toronto [etc.], Harrap, 1963.

637 p. 19 cm. 18/- B 63-07142

1. Italian language—Dictionaries—English. 2. English language—Dictionaries—Italian. I. Title: Piccolo dizionario italiano-inglese.

PC1640.C63 1963 453'.2 70-406482
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Commutative algebra. New York, W. A. Benjamin, 1970.
xii, 262 p. 23 cm. (Mathematics lecture note series)

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Conference on Comparative Mammalian Cytogenetics, *Dartmouth Medical School, 1968.*

Comparative mammalian cytogenetics; an international conference at Dartmouth Medical School. Edited by Kurt Benirschke. New York, Springer-Verlag, 1969.

xvi, 473 p. illus., maps, ports. 25 cm. 24.80

Sponsored by the National Institute of Child Health and Human Development (contract PH 43-68-1001) and others.

Includes bibliographies.

1. Cytogenetics—Congresses. 2. Mammals—Congresses. 3. Karyotypes. I. Benirschke, Kurt, ed. II. Dartmouth College. Medical School. III. U. S. National Institute of Child Health and Human Development. IV. Title.

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Content Fm 26 | Bib Lev m 27

Mod Rec 28 | Cat S 29

gac

Etzioni, Amitai, *comp.*

Comparative perspectives; theories and methods, edited and with introd. by Amitai Etzioni [and] Fredric L. DuBow. Boston, Little, Brown [1969, ©1970]

xiii, 410 p. 22 cm.

Includes bibliographical references.

1. Social sciences—Comparative method—Addresses, essays, lectures. I. DuBow, Fredric L., joint comp. II. Title.

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F I G U R E 5

WASHINGTON STATE NETWORK PLAN

II. Proposed Library Network

1. General. The "Library Network" of the State of Washington is constructed from a variety of cooperative groups of individual libraries, through contractual agreements among the libraries to share their resources, and arrangements between the State Library and each group of libraries for certain services. Figure 1 defines terms used in describing this network, and Figure 2 presents a schematic of existing elements from which it is constructed.

As Figure 2 shows, the library network is based on the individual libraries of the state as the primary building block. From them, a variety of cooperative groups are formed through contractual agreements among the libraries and with the State Library. These contracts call for the following commitments from each library participating in a cooperative group:

(1) A commitment to make its collection and services available to the constituency served by other libraries in the group on the same basis of service as provided to its own constituency.

(2) A commitment to maintain an agreed-upon level of service (e.g., book budget, reference staff, etc.).

(3) A commitment to pay for a proportionate share of the costs of a union catalog of the holdings of the group. This proportionate share is to be determined from consideration of both the size of population served and the contribution of resources provided. (i.e., the larger the constituency a library serves,

FIGURE 1

GLOSSARY

	TERM	DEFINITION
1.	Area	One of twelve areas in the State which are defined by demographic and geographic criteria. The Bowerman Plan for Regional library development divided the State into twelve geographic regions for purposes of library development. Definition of the regions was based on population trends, economic data, and geography. There is no reason why these same regions cannot be built upon as the proposed area groups for network planning.
2.	Geographical Area Group	A compact of cooperating libraries within an Area formed by contract to share resources through a common book catalog. Group affiliation within an area offers several benefits to a participating library: 1) it makes a much wider range of resources available to any one library or to any individual in the region; 2) through a common book catalog, it relieves local cataloging burdens, thus releasing professional time for better and increased reader services; 3) economies can be achieved through centralized purchasing and processing and, 4) reduction in duplicate buying makes more money available for the purchase of a greater variety of new materials and other purposes.
3.	Group Center	A library formally designated by the Network Plan as the principal focal point for an area or specialty group. A Group Center coordinates title selections for the participating libraries in its area, and forwards them to the State Processing Center for acquisition and processing.
4.	Information Center	Group center for a specialty group, particularly one which incorporates a high degree of substantive (subject) competence in the specialty.

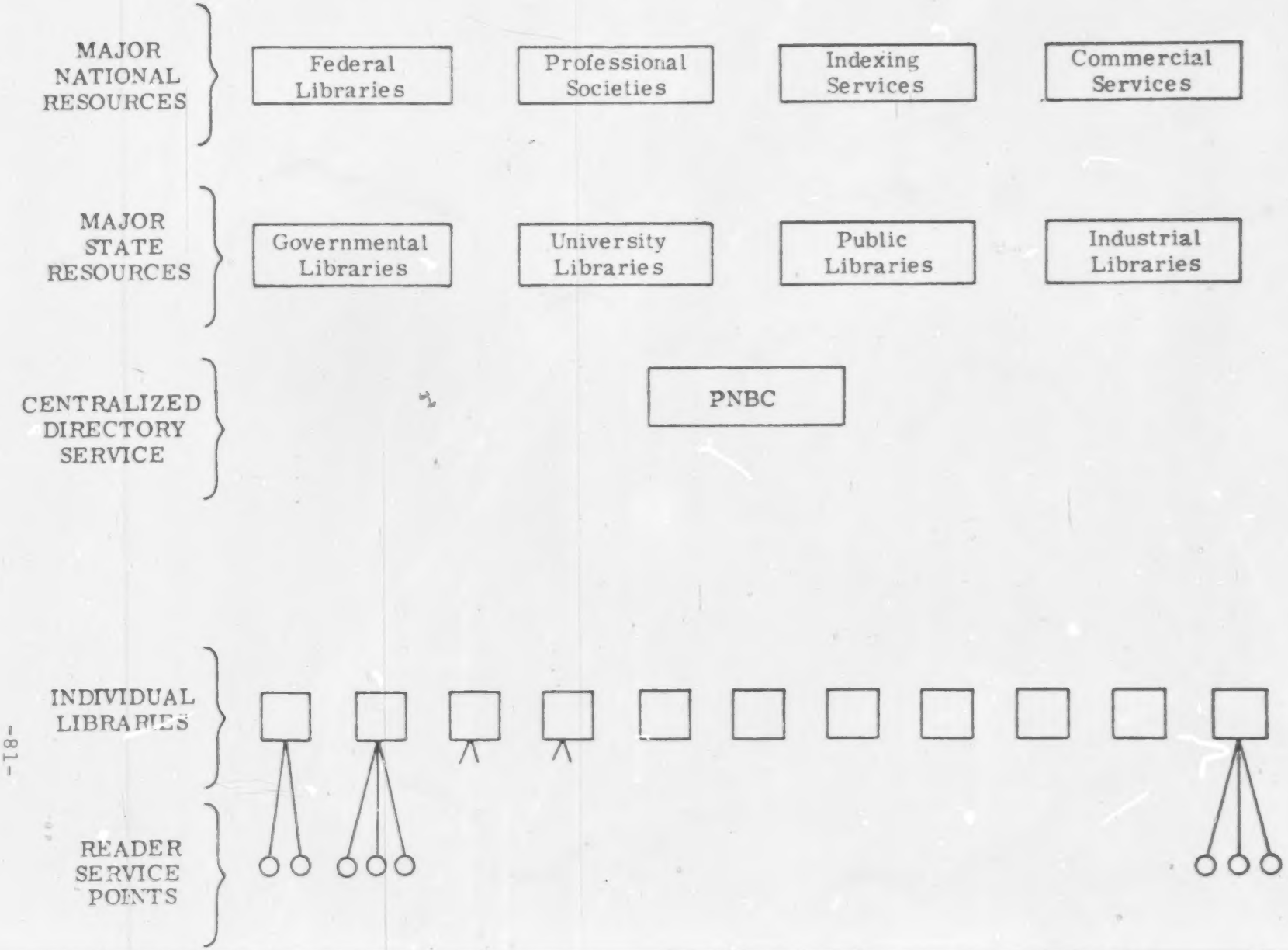
FIGURE 1

GLOSSARY (cont.)

	TERM	DEFINITION
5.	Major National Resources	Those national institutions (including the Federal libraries, professional societies, indexing and abstracting services, commercial services) which are the primary sources of cataloging and indexing data and repositories of original references.
6.	Major State Resources	The largest libraries of the State which, because of the excellence and size of their collections, serve as ultimate reference points.
7.	Processing Center	A State-operated organization for 1) ordering books for groups of libraries, 2) producing and maintaining book catalogs for common use, 3) processing books for library shelving.
8.	Reader Service Point	The point of initial contact in a library for an individual reader request (including branches, bookmobiles, etc.).
9.	Reference Center	Group center for an area group, but particularly one with adequate professional staff and reference resources.
10.	Specialty Group	A compact of cooperating libraries located anywhere in the State whose common subject interests draw them together for the contractual use of specialized resources.
11.	Switching Center	A State-operated organization for referring requests that cannot be satisfied by Group Centers to larger state or national libraries.

FIGURE 2

Schematic of Existing Elements



the larger its proportionate share; the larger the collection it provides, the smaller the contribution it is required to make.

(4) A commitment to contribute to the establishment of a new group reference center, or to the augmentation of an existing strong collection to serve as such a center.

2. Geographical Area Groups. The most evident kinds of groups are those in geographic areas. Twelve of these can be defined, based on Bowerman's "Regional Plan for Library Development" as shown in Figure 3. Although issue may be taken with some details of specific assignment, in general this constitutes a reasonable division by criteria of geography, population, and economy. Area groups are expected to include all types of libraries in the area, including public, school, special, and governmental. This is shown schematically in Figure 4.

In each group, it is expected that at least one "dominant" member will serve as a group "reference center". This may be the primary resource upon which the other libraries in the group draw; it may be the administrative center for the group; or it may be simply the best reference collection. Figure 5 presents the schematic relationship of group centers to their respective areas.

3. Production of Union Catalogs. Since the production of an effective union catalog for the group is an essential element in providing for sharing of resources, the State Library "Catalog Production Service" becomes a primary

FIGURE 4

Schematic of Geographical Area Groups

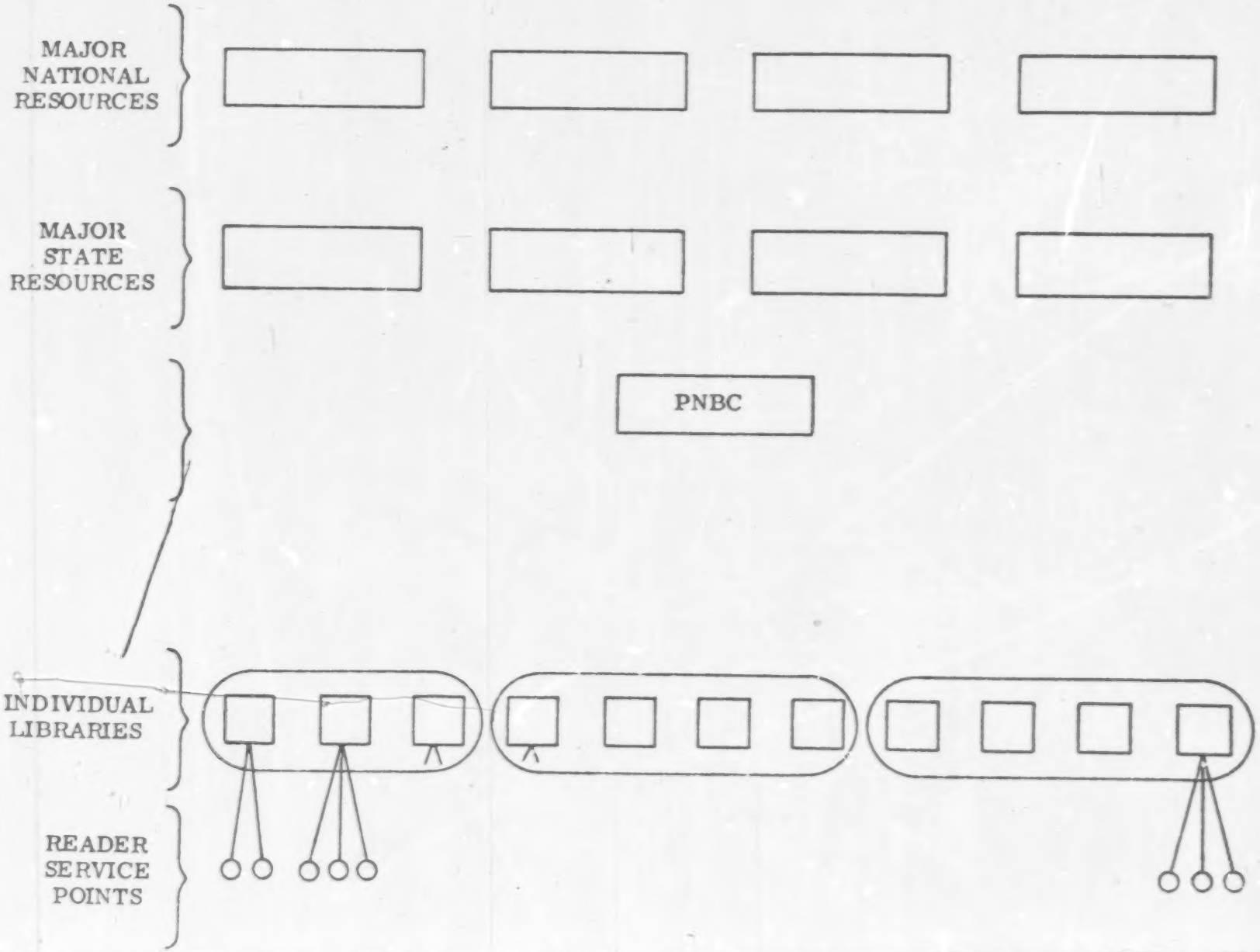
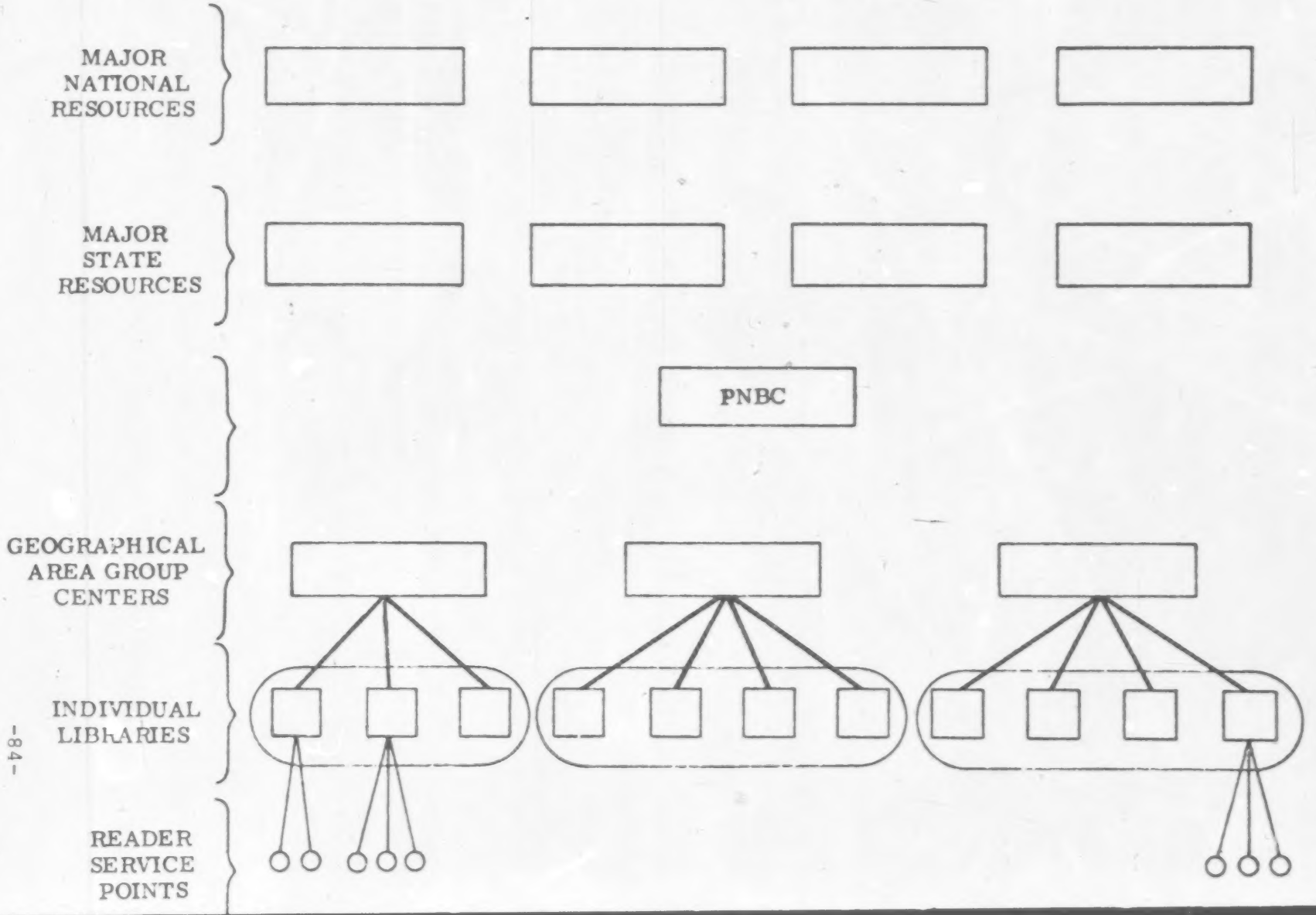


FIGURE 5

The Designation of Geographical Area Group Centers



participant in the establishment of a geographic area group and will contract to produce the catalog of its holdings. The size of the catalog and its frequency of publication are determined by balancing group needs with budgetary issues, primarily determined from the cost of printing an entry. The availability of nationally produced magnetic tapes containing catalog and index data makes the operation of the "Catalog Production Service" economically feasible. Figure 6 therefore presents, in schematic form, the acquisition of these nationally produced magnetic tapes and the production from them of catalogs which are distributed to the libraries and reader service points in each geographic area.

4. Specialty Groups. Another, less evident but equally important, kind of grouping is by specialty. Examples include medicine, law, technology, educational media, etc. Such groups may be formed as a result of requirements for service to specialized constituencies, (such as the medical community) or to perform special services, (such as technical information retrieval). Figure 7 presents a schematic of the creation of specialty groups and specialty centers.

For specialty groups, the group centers can serve much the same purpose as the reference centers serve for the area groups -- i.e., as a primary resource, as an administrative center, as a central reference service. However, for some specialties it may be even more. The concept of an "information center" -- as a place of subject competence, of active research, and of analysis and synthesis of the literature -- is becoming increasingly important. The likelihood is great that

FIGURE 6

Production of Geographical Area Group Catalog

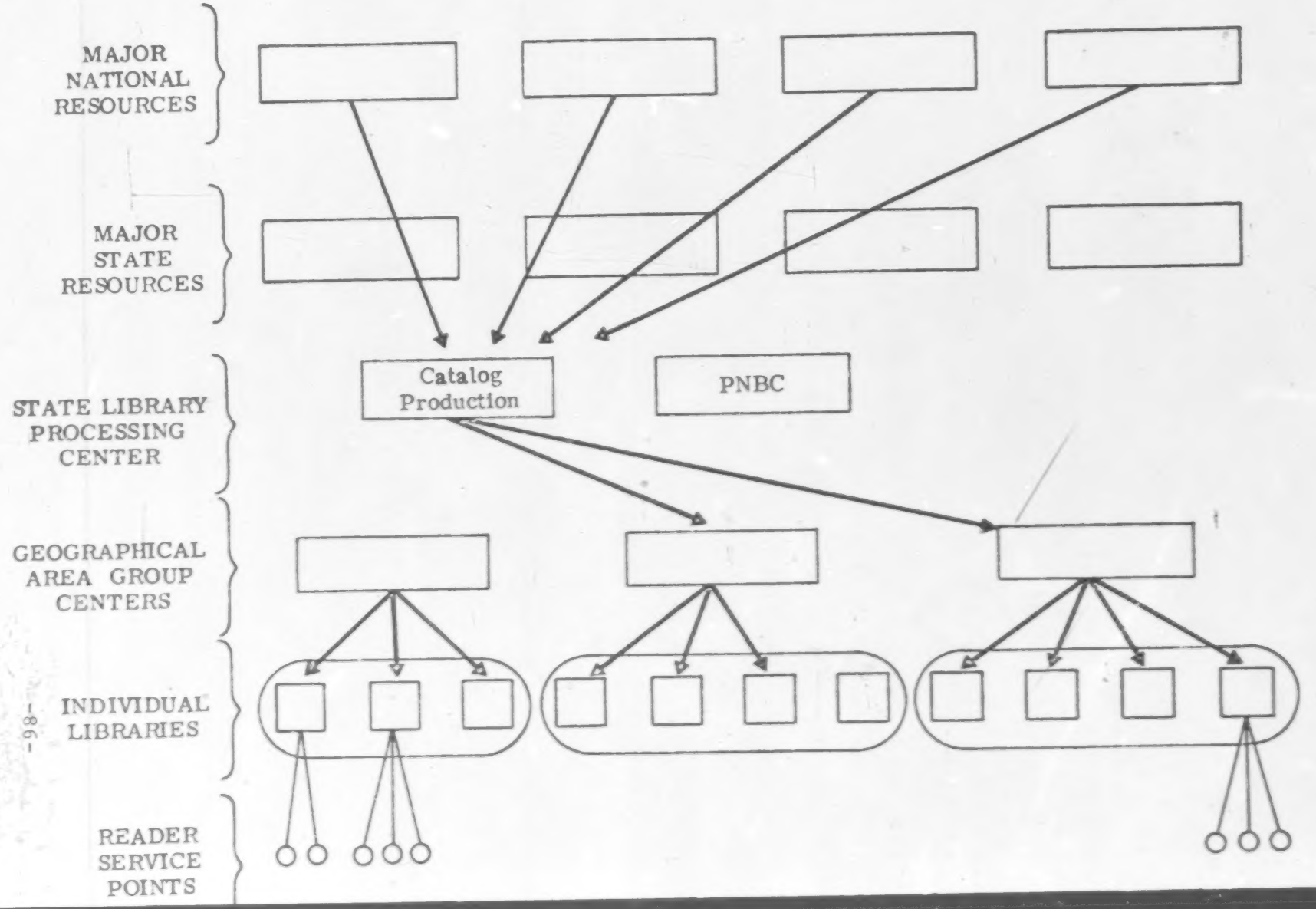
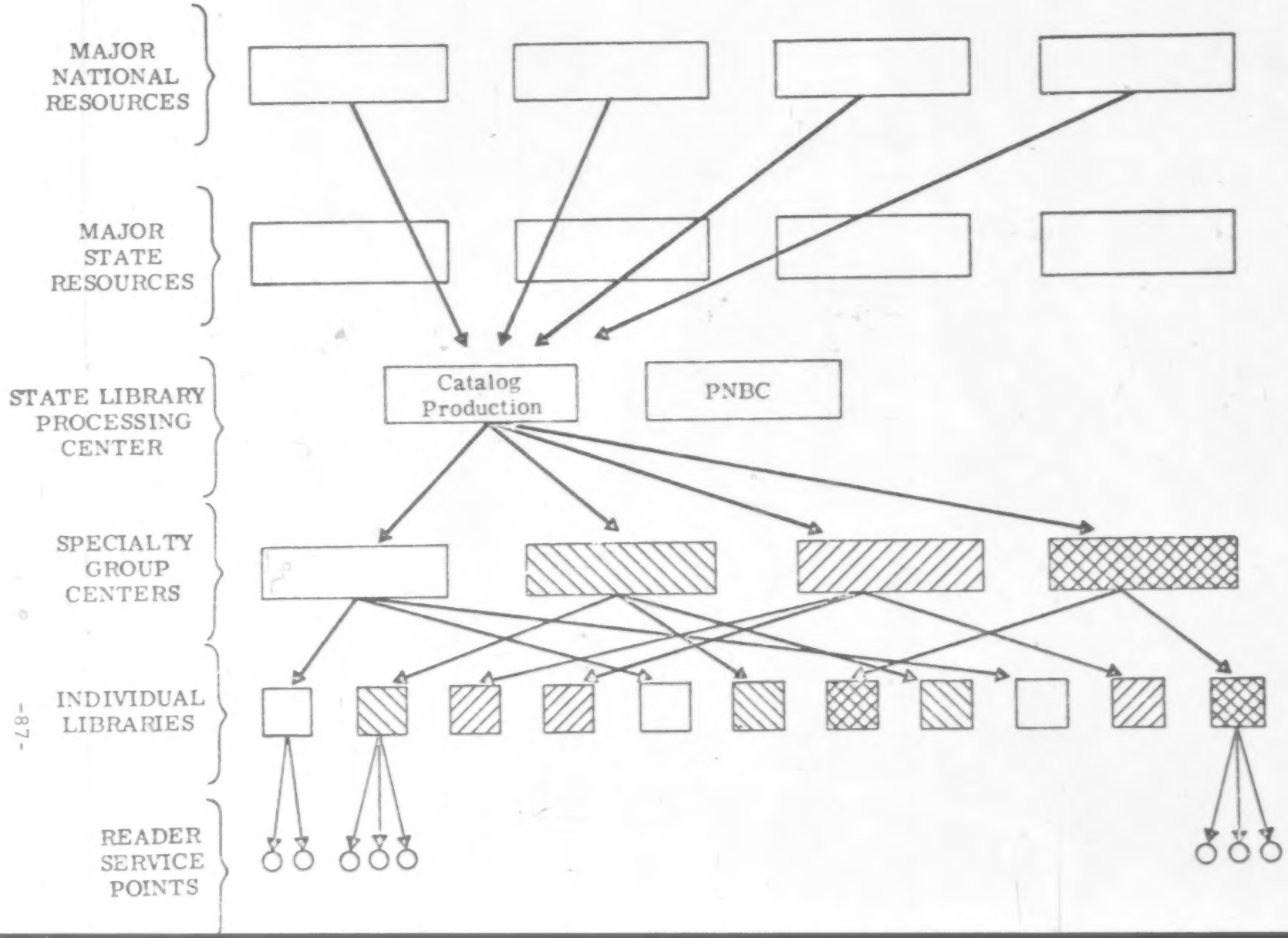


FIGURE 7

Definition of Specialty Group Centers



many of the specialty group centers will be such "information centers" and will be associated with institutions of higher education in the state. In such cases, their catalogs will probably not be a "union catalog", but a catalog of the information center itself, produced by it as part of its research activity.

As Figure 7 shows, it is to be expected that many libraries will participate as members of both an area group and one or more specialty groups. Typically, for example, a school library will be a member of an area group - sharing resources with the public and special libraries in the area - as well as an educational media group - sharing films, slides, etc. among the schools of the state - and perhaps even as part of an educational research group, drawing on the resources of educational research centers and laboratories. Or, another example, a hospital library might participate in an area group - usually drawing on the resources of the public library - as well as be a member of a medical specialty group.

5. Switching Center. There are certain Major Resources which participate in the library network in unique ways. Some, such as major industrial libraries, may be essentially outside the network and drawn on only through interlibrary loan cooperation. Others, particularly the universities, will be active participants in such a diversity of ways that they cannot be categorized. For example, for many of the specialty groups, universities will constitute the group reference center or information center. In addition, universities may provide the

primary research collection of the state and, as such, the ultimate resource.

To provide access to these major resources and the geographic and specialty groups, a Switching Center is established, as shown in Figure 8. Separate contractual arrangements are made between the groups and the Switching Center. The Switching Center has catalogs for the holdings of the Major Resources of the State, Nation, and principal groups from which services are available on an inter-library loan basis.

Figure 9 illustrates the operation of a switching center in transmitting a request from a reader at a local service point to state and national resources, followed by the transmission of relevant material back to him. It also illustrates two of the key features of the network as a system:

(1) The request and its answer are transmitted over paths most appropriate to each -- the request through subject competence, the answer through the closest point of reception.

(2) Different communication equipment is used at each level commensurate with the kinds of utilization required.

6. Technical Services. In the proposed network plan, the individual library maintains its own identity and responsibility to its own constituency. In particular, each library remains responsibile for selecting and for cataloging to meet its own special needs. However, the benefits gained from cooperative acquisition should impel most groups to establish guide lines for individual library responsibility in

FIGURE 8

Establishment of Switching Center

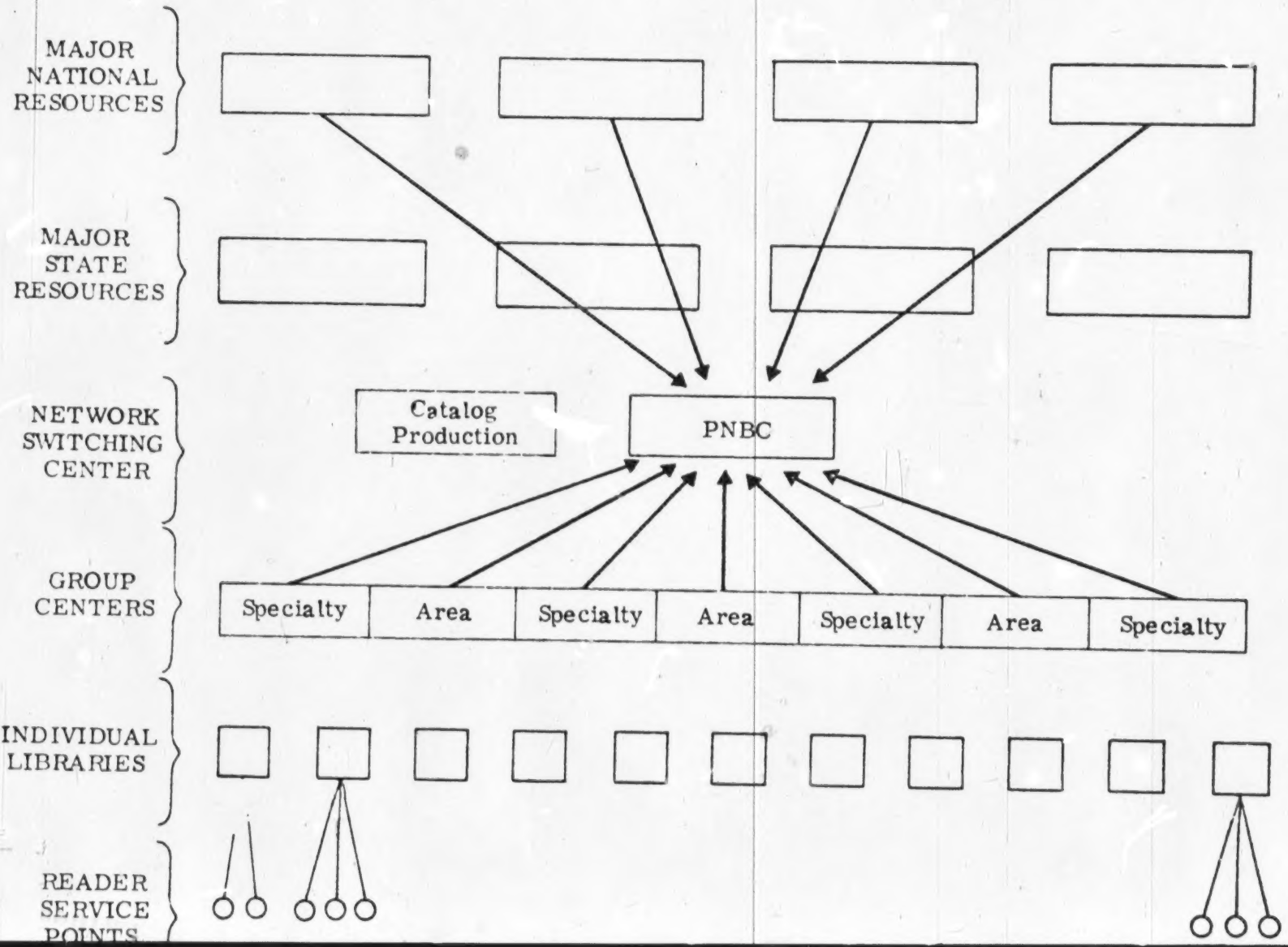
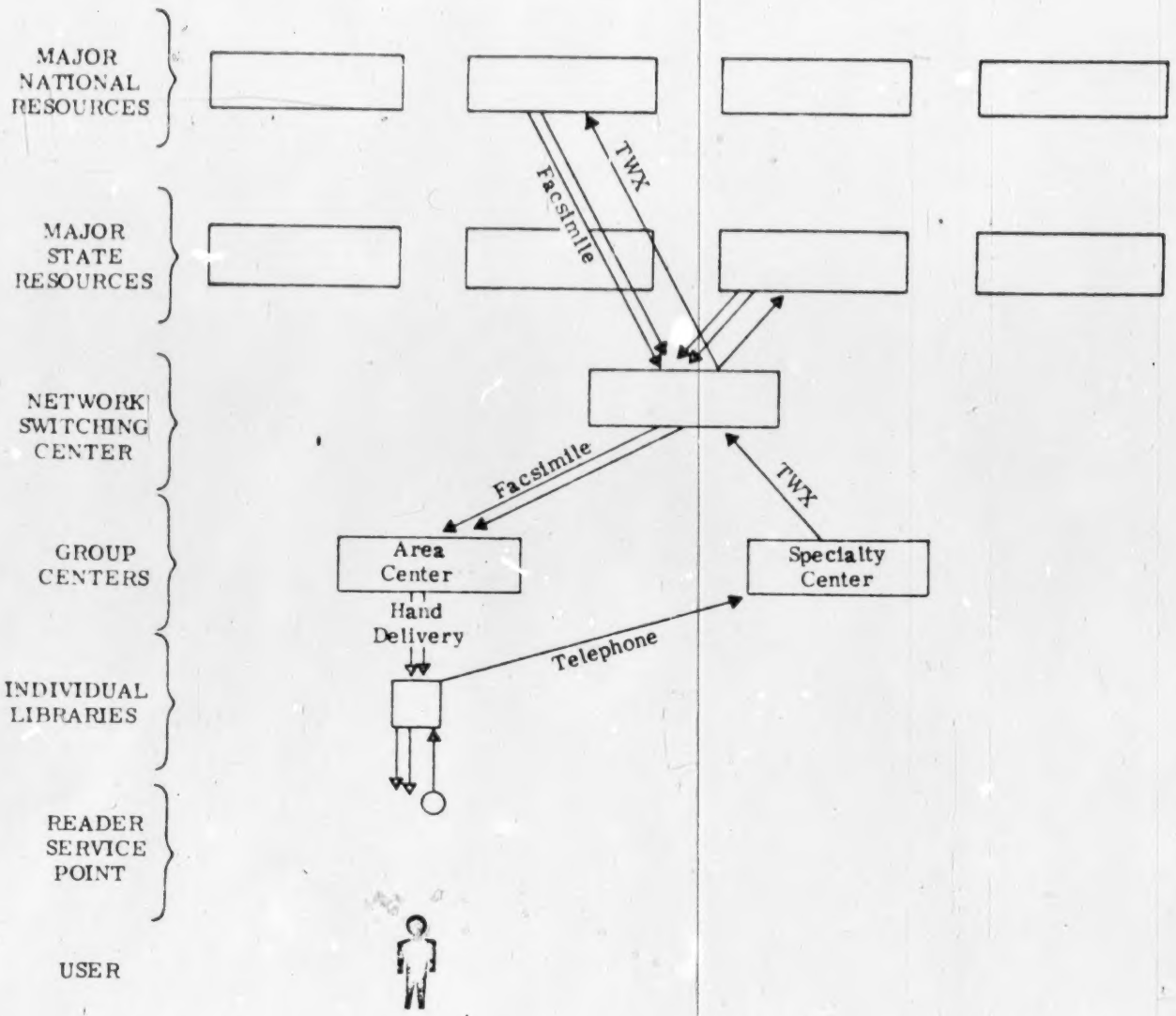


FIGURE 9

Representative Schematic of Request Transmission



specialized areas of acquisition and for combined ordering of more common material.

While the actual ordering, including accounting and in-process control, may be done by the individual library, it can also be done either by the group or under contract by the State Library "Processing Center". Book preparation also may be done by the individual library, the group center, or the State Library Processing Center.

Cataloging will be primarily based on the use of nationally produced catalog data (Library of Congress, NLM, NAL, commercial services), although in certain specialized areas, groups or even libraries may be assigned cataloging responsibilities. This data will be acquired in machine language MARC format form (magnetic tapes) according to established Library of Congress standard

Book catalogs for the holdings of a group are produced, in standard forma and arrangement, by the Catalog Production Service. The frequency of publication, and the number of copies printed, and the number of entries printed are matters of individual arrangement, based on established "costs per entry printed An individual library, within or outside a group could contract for a catalog of its own holdings in the standard format and arrangement.

When a library becomes a participant in a geographic area group, it must consider the advisability of converting the catalog of its existing collection to the standard magnetic tape format. The group as a whole must also determine the

advisability of doing so and contract with the State Library Catalog Processing Center for the work. Subsequent additions to collections would then be included as a result of the normal catalog production operations. Specifically, identifying data (such as the LC card number) would be sent to the Catalog Production Service for later extraction of relevant bibliographic data from available sources.

F I G U R E 6

WISCONSIN STATE NETWORK PLAN

III. DEVELOPMENT AND PROGRAM PLAN FOR A WISCONSIN LIBRARY AND INFORMATION NETWORK

INTRODUCTION

Wisconsin, like many other states, is committed to developing a statewide library network that involves compacts among libraries for sharing of resources, union catalog production, centralized technical services, and mechanized information services. Within this framework, there are already a number of activities underway within the State, including the library systems at Milwaukee Public, University of Wisconsin, and Madison. The purpose of this section of the report is to recommend a technical and organizational plan for developing and implementing a statewide computer-based system to serve library needs.

Levels of Service

In order to realize the goals for a statewide network, it is recommended that Wisconsin consider developing four levels of service:

1. Catalog Production Services--The basic purpose of this facility is to provide centralized union catalog production services. Functions to be performed include the following:
   - establish a standardized format for catalog data consistent with that used in the MARC tapes from the Library of Congress

- act as a central receiving point for catalog data from national and local library sources
- convert catalog data into a standardized format
- produce book catalogs of various types for central, regional, and local needs
- produce union serial lists

2. Central Technical Processing Services--Individual libraries can contract with this facility for such services as central ordering, cataloging, card production, and book preparation.

3. Mechanized Information Services--This facility provides the capacity to acquire, catalog, and provide information services from magnetic tape data bases of all kinds--reference, numerical, and text--such as those listed in Appendix D. The following are examples of specific services that might be provided:
   - Information retrieval based upon straightforward coordination of index data
   - Textual analysis and language data processing
   - Question-answering processing
   - Statistical analysis of data bases
   - Preparation of lists including bibliographies, permuted indexes, subject authorities, citation indexes, and thesauri

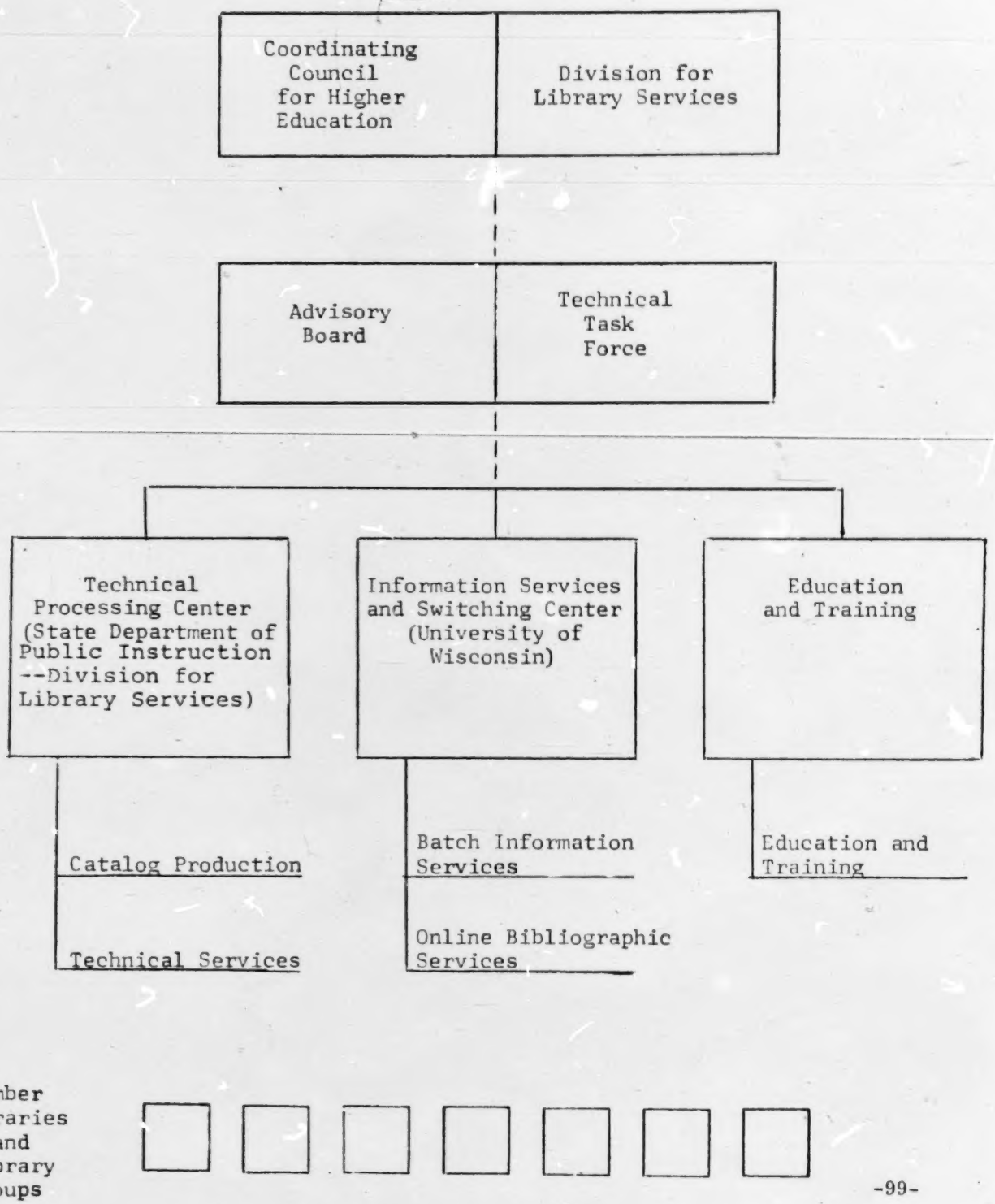
4. On-line Bibliographic Services--The purpose of this service is to maintain bibliographic data on disk files and to provide on-line access to these files for libraries throughout the State. Libraries will be able to both query and add information to the data files.

In addition, an educational and training program should be established for the purpose of educating librarians and informing patrons about the operation of the system, available services, and procedures for using them.

Administrative Organization

Figure 3 shows an organizational schematic and indicates the groups who might be responsible for developing these services in the statewide library system. It is recommended that the Coordinating Council for Higher Education (CCHE) and the Division for Library Services of the State Department of Public Instruction jointly serve as administrative focal points of the system. Their primary functions would be to receive money from the State and Federal governments for the development, implementation, and operation of the system. An Advisory Board and a Technical Task Force would serve as coordinating and policy advising bodies. Specifically, the responsibility of the Advisory Board, composed of librarians representing various types of libraries and library groups, is to guide CCHE and DLS on what should be done within the State network. The State's Council on Library

Figure 3: Organizational Schematic for a Statewide Library Network in Wisconsin


Coordinating Council for Higher Education
Division for Library Services
Advisory Board
Technical Task Force
Technical Processing Center (State Department of Public Instruction --Division for Library Services)
Information Services and Switching Center (University of Wisconsin)
Education and Training
Catalog Production
Technical Services
Batch Information Services
Online Bibliographic Services
Education and Training
Member Libraries and Library Groups

Development might serve as the initial organization for this group. The Technical Task Force, made up of members from the systems analysis staffs of libraries and library groups, has three general tasks. First, it is responsible for establishing the specifications of the system and assuring that the network is developed to meet the needs of the library community as determined by CCHE, DLS, and the Advisory Board. Second, it should make sure that plans take advantage of current and near-future state-of-the-art developments in computer technology. And, third, it should plan to assure compatibility of data that is used by different central services. An additional function for all three policy groups will be to help arrange for contractors to carry out the technical work needed to develop, implement, and maintain various parts of the system.

The Division for Library Services in the State Department of Public Instruction should be responsible for development and operation of the Catalog Production Services and the Technical Processing Services. The University of Wisconsin should be responsible for development and operation of mechanized information services and the Switching Center and on-line bibliographical center for the network.

The Coordinating Council for Higher Education should make an early effort to contract for the development of Education and Training as a "continuing education" function. Groups with experience in providing such a program should work in cooperation with the University of Wisconsin Library School and University Extension.

Implementing an Administrative Organization

Formation of any network, or cooperative, is generally a slow and deliberate process. Most organizational units are accustomed to operating autonomously and when they join cooperatives, some adjustment is invariably required. Psychological and sociological factors aside, the Wisconsin Library and Information Network can best be started by establishing an Information Network Office in the State Division for Library Services.

Figure 3A is a summary functional description of the Information Network Office. It is presented as a guideline to highlight Network Office objectives and explain the nature of its work. Detailed functional descriptions follow.

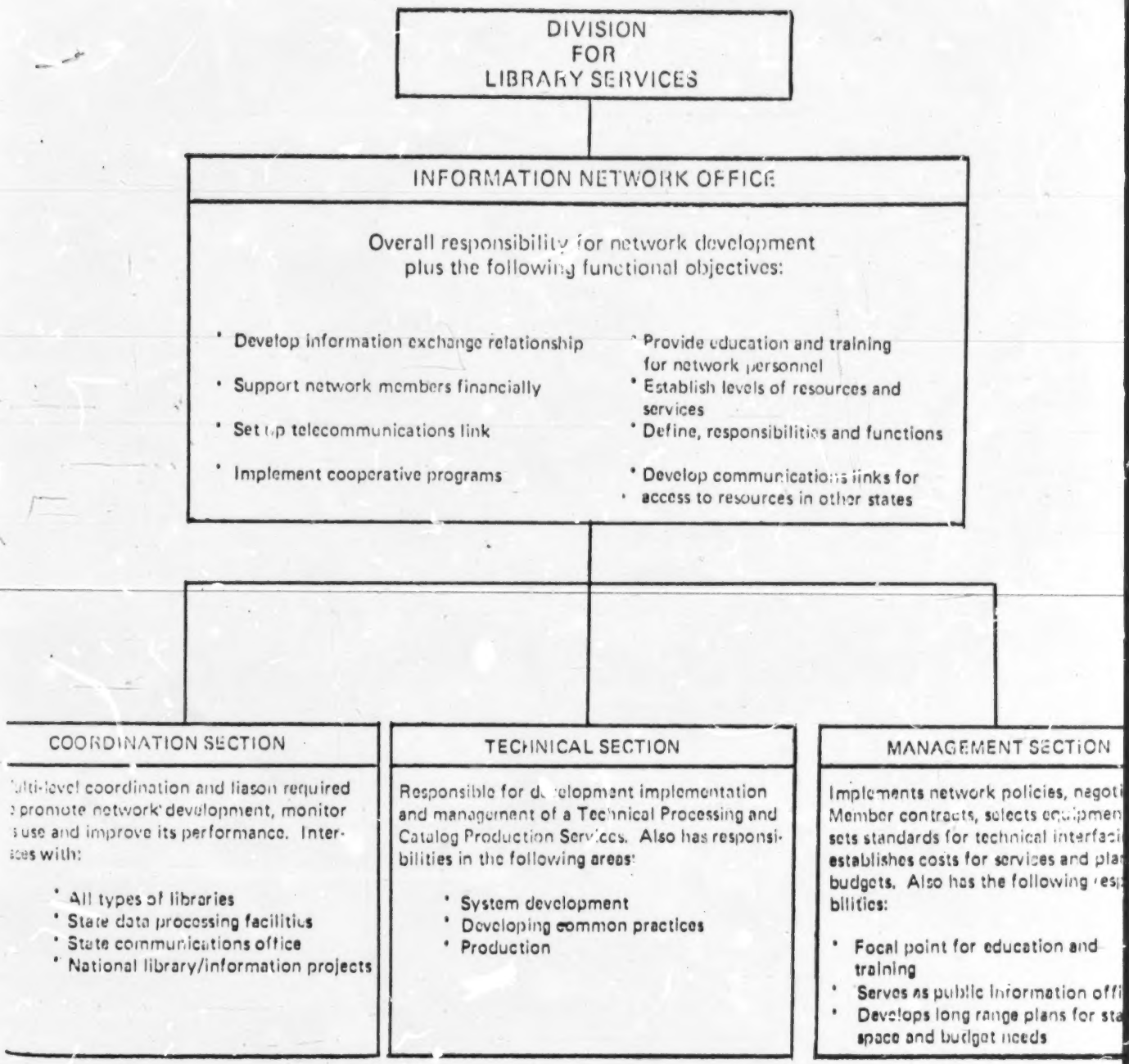

DIVISION
FOR
LIBRARY SERVICES
INFORMATION NETWORK OFFICE
Overall responsibility for network development
plus the following functional objectives:
• Develop information exchange relationship
• Support network members financially
• Set up telecommunications link
• Implement cooperative programs
• Provide education and training for network personnel
• Establish levels of resources and services
• Define, responsibilities and functions
• Develop communications links for access to resources in other states
COORDINATION SECTION
ulti-level coordination and liason required promote network development, monitor use and improve its performance. Interfaces with:
• All types of libraries
• State data processing facilities
• State communications office
• National library/information projects
TECHNICAL SECTION
Responsible for development implementation and management of a Technical Processing and Catalog Production Services. Also has responsibilities in the following areas:
• System development
• Developing common practices
• Production
MANAGEMENT SECTION
Implements network policies, negoti
Member contracts, selects equipmen
sets standards for technical interfac
establishes costs for services and pla
budgets. Also has the following res
bilities:
• Focal point for education and training
• Serves as public information offi
• Develops long range plans for st
space and budget needs

FIGURE 3A SUMMARY CHART -- FUNCTIONAL DESCRIPTION OF INFORMATION NETWORK OFFICE

Selection of a Director for the Information Network Office will require finding someone who is a specialist in information science, who understands libraries, and who is technically equipped to direct programs which, in time, will certainly involve the use of computers, telecommunications equipment, and other elements of network technology. The person selected therefore, should be relatively young and capable of meeting and dealing effectively with library and technical personnel.

Creation of a Network in Wisconsin will be an evolutionary task. A Network cannot be developed overnight; it is a slow and gradual process requiring considerable management tact and careful planning. Yet, it must be started with a workable, here and now module that will provide a real service, which people can understand and want. Thus, the creation of a strong Network Office from the very beginning is essential. If the Network concept does take hold in Wisconsin there should be an operating Network Office on hand to further its development and accelerate its growth.

Summary of Network Development Plan

Figure 4 presents a summary of major tasks to be accomplished (after the Network Office is established) in developing a statewide library network, assuming that Wisconsin begins work on the system in 1971. These tasks fall into three general categories:

1. Those involved in establishing the organization of the major components in the network (tasks 1 through 6);
2. Those in which procedures are developed for interacting among the components in the network (tasks 7 through 10);
3. Those which provide for the development, implementation, and operation of central services (tasks 11 through 19).

PROGRAM PLAN

The remainder of this report discusses the tasks, costs, and schedule necessary to develop the four central services--book catalog production, central technical processing, mechanized information services, and on-line bibliographic services. There are six phases in the development and implementation of each of these services which lead to their becoming operational sub-systems within the Knowledge Network for Wisconsin. First, there is a management stage during which the capabilities are developed for administering each service on a long range basis. Second, the feasibility of each service and the preliminary specifications of each major operation must be established. Third, a training, education, and public relations program must be created for informing both librarians and library patrons about each service. Fourth, a development and implementation phase will create the operational capabilities for each service. Fifth,

Figure 4: Summary of Network Plan
1971-1975

Event	Task Description	Starting Date	Operational Date
1	Establish processing center, with emphasis on Book Catalog Production Services	1971	1972
2	Establish information service and switching center	1971	1974
3	Establish geographic area cooperative groups encompassing all libraries in each area	1971	1972
4	Establish area reference centers in the dominant library of each area	1971	1972
5	Establish cooperative groups for special libraries	1971	1972
6	Establish a primary reference center for each specialty group	1971	1972
7	Collect area catalogs at the Switching Center to aid directory services	1972	1973
8	Collect specialty catalogs at the switching center to aid directory services	1972	1973
9	Use statewide telephone system for inter-library communication	1972	1973
10	Produce regional catalogs for the holdings of each geographical area (non-specialty libraries)	1972	1973

Event	Task Description	Starting Date	Operational Date
11	Establish Automated Switching Center at the University of Wisconsin, including TWX, facsimile transmission, and digital computer communication	1973	1975
12	Acquire nationally produced machine-readable catalog data (MARC, MEDLARS, ERIC) for the catalog production and technical processing center	1971	1973
13	Acquire machine-readable data bases for the information services center	1972	1974
14	Provide technical processing services to individual libraries and library groups throughout the State	1971	1974
15	Provide retrieval services to users based on information in the machine-readable data bases	1971	1974
16	Collect serials collection information from individual libraries	1972	1973
17	Produce union or regional list of serials	1973	1974
18	Provide on-line computer services to clerical processing in group centers	1973	1975
19	Provide on-line computer retrieval services to users of specialty centers	1973	1975

during the operational stage, actual services are offered. Finally, sixth, the maintenance phase provides for continued improvement of the operational system. Each of these phases can be separately budgeted in terms of time and money, but each is a necessary step toward realizing the operational system.

Management Phase

This stage establishes the basic management and administrative capability to provide long-range, continuing direction for the network, as well as its development. The tasks of the management staff include the following:

1. Recruit staff for each of the phases.
2. Establish procedures for cost accounting and cost/benefit analysis.
3. Ensure adequate funding for each stage in the development of central services.
4. Establish an activity plan including the work breakdown structure, identification of responsible personnel, and detailed time-phasing of each activity.
5. Establish the proper communication channels for interaction among the central services personnel, advisory groups, and librarians.
6. Make sure that there is adequate documentation from each phase.